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THE UROLOGIST AND THE GENERAL PRACTITIONER*

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IN medical circles, an important subject for discussion at the present time is the relationship between the general practitioner and one who limits his activities to one particular branch of the healing art. The latter is usually referred to as a specialist. These discussions centre on such subjects as training and certification and the controversial matter of fee schedules. It, therefore, seems in order that we might well open a discussion into the position of the urologist in the general picture. This is all the more important as we are facing an increasing amount of supervision and regulation by government bodies and various schemes of health insurance.

The real basis for specialization or limitation of field of activity is not economic but rather the realization that the field of medicine has become so vast and complex that it is just impossible for any one person to assimilate the knowledge available. Most physicians who limit their activities find that it is all they can do to keep abreast in their own field particularly when they have a living to make for themselves and family. A specialist is supposed to be well versed in his chosen or limited field. The accepted field of urology includes all the conditions classed as occurring in the genito-urinary system, excepting the reproductive organs in women. The functions and disorders of these systems are so interwoven with the other vital systems of the human body that a urologist must first have a well balanced training in basic sciences and general medical and surgical procedures before entering into his limited field.

A general practitioner is one who has a sound basic training in all branches of medicine and has the ability to examine his patients and apply the most appropriate treatment within his means. He must in addition be a man who enjoys studying and meeting people and as his knowledge and experience increases he fills an irreplaceable position in the lives and minds of his patients. He becomes more than their physician, he often becomes their confidant and friend. The general practitioner while not expected to be expert in all the refinements of diagnosis, must be willing to admit when he has reached the end of his resources and be prepared to ask for the assistance of someone trained in a particular field. Let us keep in mind that the physician, whose duty is the care of his patient, may find that it is not in the patient's best interest to have too exact a diagnosis and therefore he may at times honestly withhold refinements of diagnosis and treatments which would not only be expensive but of no particular value to his patient. The relationship between the general practitioner and the patient is an intensely personal one and the physician's responsibilities are direct to the patient and not to any third party.

Gradually the appreciation has come that there must be some standard by which practitioners may be measured. The day is past and our country too vast for a physician to know personally about the qualifications of those in other centres or even in his own community if it is one of our larger cities. A practical step towards setting this standard is called certification, which simply means that a man's confrères in that branch of medicine agree that he has attained a certain minimum standard.

The various specialties, including that of urology, have established minimum standards for certification. Those attaining these standards by recommendation or examination receive their certificate from the Royal College of Surgeons of Canada. This is accepted for registration in the various Provinces. It does not follow that certification carries with it all the privileges of fellowship in the Royal College

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nor does fellowship automatically entitle anyone to certification in anything but his particular field.

There are many comments on the standards of training for certification. Many feel these standards are too high, others feel they are too low. There are comments from other sources that we are turning out too many specialists and not enough practitioners.

The first requirement for certification is being a graduate of a graded medical school, and all universities are based on giving general medical education to point of graduation. This general education provides the entry into general practice. It has been stated that the best foundation for special work is a sound knowledge of general practice. We may ask ourselves: does the present university course lend itself toward turning out, as its primary output, good general practitioners? Many doctors feel that it does not, that the tendency is to turn out graduates who have been trained as potential specialists.

Quite recently the dean of one of our largest medical faculties spoke on the difficulty of securing general practitioners for the rural and smaller communities. He stressed the disinclination of the city young man to go to the smaller areas after graduation. He suggested the possibility of scholarships to provide transportation and partial maintenance to equalize the expense of education with those who live in university centres. He used the theme that the man from the smaller community is more likely to return to that type of community after his training. This is true and his points are well made as far as they go. It is suggested that a very important factor is the type of training given in our larger hospitals, particularly during intern life. The student is gradually weaned away from general work and his mind is more and more focussed on special subjects. He usually sees a very limited type of patients and becomes too dependant on extensive laboratory and other diagnostic procedures which excellent in their own place are not applicable to the general practice of medicine. I am not belittling these procedures but most interns do not see them in the right perspective. Few Canadian hospitals have enough out-patient clientele to make up for this deficiency and the out-patient work available will rapidly decrease under any general prepaid medical scheme.

It is suggested that for general training a kind of preceptorship might be evolved which would bridge the gap between formal graduation and internship. The preceptors would naturally have to be carefully chosen and their reports and guidance would have a lot to do with future training. There is much to be learned about the practice of medicine that is not taught in school. It is suggested that after such a period of training the young graduate would get more out of his internship.

In urology minimum standards for certification have been set and these standards are high. It is true that many at present practising urology and awarded this certification would not be able to qualify on the basis of present requirements. Let us recall that it is only in recent years that urology has attained its present position and it is only recently that the outlined courses of study have been available. Many present day urologists have had to learn their work in a much harder and less direct way. Present day medical students and interns and more important their parents are much better informed on the need of prolonged training for special work than they were a generation ago.

A great danger is the probability of closing the door to advancement in our field to those who during a busy practice have found that they have an aptitude and a liking for urology and who having perhaps the responsibility of a family find that they are barred by being unable to drop everything and go back to school for 2 or 3 years. This same problem is bothering other specialties, as witness the address of the president[1] of the American Orthopædic Association in which he suggests that some arrangement must still be made for the good man, who did not make his final choice at graduation, to obtain his certification. A large and successful general practice gives a man something that a recent graduate does not have no matter how long his hospital training.

I do not contend that certification should be a leveller, it provides only the minimum standard. Urologists should not be all measured by the same standard. The training of a man who hopes to head the urological department of a large teaching hospital must be more intensive and be carried to a much higher degree than the minimum required for certification. Here I might emphasize a point I made about the general practitioner. A urologist should be able to recognize when his patient will be better served by transfer to a more highly trained and capable

urologist. A man does not lose face with either his patient or his medical confrères when he freely admits that a case is beyond him. Those of us who practise in smaller communities know how intensely personal the practice of medicine is; our accidents and misfortunes are not hidden in the records of a large city. I have never found it a handicap to frankly tell a patient that I feel that with his condition it would be better for him to seek advice elsewhere. I say this to the young man and even to those who are in larger centres; your intelligent patient does not expect you to know everything and he will respect you more for being frank. It is better to be known as a safe person to consult than develop a reputation as a "know it all".

There is in organized medicine a rather insistent demand that organized medicine only recognize one tariff of fees, on the plea that a good job is worth so much regardless of who does it. It is true that under ordinary schedules the specialist or highly trained man has some leeway under the notations on the tariff "and up". However when it comes to prepaid or government schemes there is never any "and up"; it is nearly always down.

I submit that this view is based on a very weak foundation. Does any business organization place all its workers on the same basis? Does any labour organization grade all workers the same? Recently I noticed an advertisement of the Dominion government asking for stenographers and stating four grades and four ranges of salaries. Yet they are all stenographers. Now if all stenographers cannot be placed in the same classification or on the same salary schedule why then should all doctors be placed on the one basis. The assumption is not only impracticable, it is ridiculous. At the same time I do not contend that urologists should all be placed in one category. There must be some allowance made for extra training and extra ability and the limitation and concentration of effort. These allowances must be based on sound foundations or they will not stand the test. There must be certain minimum standards and there should be provision made for men to advance from one grade to another, and this advancement must be accompanied by a higher remuneration in fee schedules, otherwise what inducement besides self-satisfaction and a sense of responsibility and duty is there for a man to sacrifice the time, energy and expense to improve his knowledge and ability? True knowledge and true skill and ability are entitled to some tangible reward.

I would like to clinch my argument with this quotation from the evidence given by Dr. Archer at the hearing of the special committee on social security at Ottawa.[2]

> "A specialist, of course, should be a man who has had training and experience which obviously equips him to say that in his chosen field, which is a limited field in medicine, he is more competent in that field than the general practitioner; and if he is going to limit his work to one field it has long since been recognized that he is entitled to higher fees for that work."

I have referred to the closeness of the tie between the general practitioner and his patient. We all realize that the tie is not quite as close as formerly when the family doctor attended all members of a family regardless of age, sex or disease. Today it is quite common for different physicians to attend different members of the same family. This is also an age when patients shop around, attempt a diagnosis of their own and choose their own specialists. This naturally brings up the question whether a specialist should only see referred cases or be free to attend any patient coming to his office. I consider that a specialist is entitled to treat any patient who comes to him direct if the patient falls within his sphere of activity. One of the first questions a specialist asks the new patient is, who referred you to me? A surprisingly large number state that they have come of their own desire or have been recommended by friends. In these patients one usually finds that they have consulted several physicians before deciding to consult a specialist.

Naturally we would prefer to have all our patients referred to us if for no other reason than that we would have someone with whom we could frankly discuss the patient's condition and background. I suggest that when a general practitioner finds one of his patients under the care of a specialist, instead of being angry at the specialist, he should review his own handling of the case and see where he fell down in either his diagnosis or treatment. I know that so far as urologists are concerned if the general practitioner enquires he will get a full story of the urologist's findings and treatment unless, as happens only rarely, the patient has asked that no doctor be told about his condition.

Most direct relationships between the urologist and the general practitioner are covered by a wide application of the Golden Rule and our

own code of ethics. The best relationships exist where there is a real understanding of the personalities, abilities and limitations of each other. The urologist should attend and participate in local medical staff and medical society meetings. If the urologist shows an interest in and a willingness to help in the problems of the general practitioner he will find them quite ready to help him when he has problems and difficulties of his own.

The general practitioner is quite capable of dealing with many urological problems. However as soon as he finds that he is not getting the desired results, or finds the case beyond his equipment or attainments, the sooner he refers the patient the better for all concerned.

In referring a patient it is always desirable for the general practitioner to make direct contact with the urologist in person or by phone, letter or telegram. This interview or letter should give a résumé of the patient's history, including what has been found, what has been done and particularly what has been told the patient. The urologist should also be told the practitioner's appraisal of the patient's background. This information will help the urologist in his study of the patient, and will help break down the apprehension of the patient in meeting a new doctor. The patient will appreciate taking a letter or a note from his doctor and it forms the first direct link for a return of the patient to the referring physician.

Unless the practitioner is very sure of his diagnosis and treatment indicated he had better refer to these in very general terms. The patient will be satisfied with the information that he has a condition in his urinary tract which requires the type of investigation and treatment a urologist is trained to give. The urologist is then in a position to piece together the story, and with his own study and investigation can nearly always arrive at a definite diagnosis. The patient is entitled to and should be told the urological findings and it is much better for all if the patient has not been given a definite diagnosis beforehand.

The urologist should remember that the patient has been referred to him for urological diagnosis and treatment and if he finds that he needs more information of a general character he should contact the referring physician and arrange with him for this investigation. The urologist may have his favourite internist or other specialist and the general practitioner or patient may have his. It is therefore very desirable that agreement be reached beforehand. This is not always possible when reference is made to a distant city. Here the urologist must use his own judgment. However, the alert practitioner should suspect when other reference may be necessary and has his opportunity to show his preference at time of reference.

The urologist is carrying the responsibility of the patient for his urological problems. He must not forget that the referring physician is carrying a heavy responsibility. He has referred the patient and is expected to be in a position to keep the family and relatives informed as to the patient's progress. He can only do this intelligently if he is kept informed by the urologist. The specialist, not having a public relations department, too often is neglectful in sending progress notes to the referring physician.

These difficulties are not so great if the urologist and the practitioner are in the same community or close together. Where possible I believe that as soon as the urologist has completed his investigation the urologist and the practitioner should get together and review the case and plan the appropriate procedures. The urologist must retain complete control over all urological procedures. The wise practitioner while expecting access to his patient at all times will avoid interfering with the carrying out of these procedures. However, it is in the interests of all for the practitioner to assume charge of a patient's general medical care, particularly if he is being prepared for major surgery. I personally feel very happy when the family doctor sees the patient frequently and passes judgment on his lungs, heart and other organs.

When the time for surgery arrives the practitioner should be invited to be present and to participate in the operation if he desires. Many general practitioners are excellent anæsthetists and a good general surgeon is a real help and a comfort for a urologist as an assistant. While many urological procedures are essentially one-man operations, in nearly every operation use can be made of an extra pair of hands if only to hold retractors. The urologist should remember that while he is doing the major part of the work and taking the credit or the blame, the general practitioner should be allowed to partici-

pate to the extent of his desires or abilities. It is not only the decent thing to do but it is good medical economics. Such a little thing as a look through the cystoscope is appreciated by many physicians and the man who has only held a retractor while the urologist removed a prostate, a stone or a kidney has a much better appreciation of the work done than if he had received the information second-hand.

It should not be necessary to remind the urologist that as soon as the urological procedures are complete the patient must be referred back to his family or referring practitioner. It will help relations and will help get the patient back under supervision if some work is found for the general practitioner. The family doctor can control such matters as diet, exercise and general habits much better than the urologist. The patient will appreciate a comment such as "You are going to need some regulation of your diet and habits and I suggest you see your family doctor about it. I will send him my ideas." If the urologist encounters some avenue of infection a comment such as "I suggest you see Dr. Blank about your tonsils" may bring out the statement that Dr. Blank has been telling the patient about his tonsils for some time and your remark may mean a job for Dr. Blank.

In women the disorders of the genital and urinary systems are closely related and the urologist must be familiar with gynæcological conditions. I feel that a bimanual examination is indicated at the time of every diagnostic cystoscopy. If the family doctor is present he should examine the patient as well. He may not have had the opportunity of making as thorough an examination as can be made on a cystoscopic table with the patient properly prepared. Naturally any findings or suspicions of gynæcological disease should be given to the referring physician without delay.

There should be no hesitation in the physician and the urologist having a frank discussion about finances. I do not advocate what is referred to as fee splitting. The family practitioner has a better appreciation of the patient's financial position than the urologist and can give real advice on the size of the account to be tendered. He will freely inform the urologist that a certain fee will not hurt a patient, on the other hand he will find that no urologist wishes to ruin a patient financially. At the same time the urologist should impress upon the patient the kind of service being rendered by the general practitioner in his preoperative and postoperative care. The alert physician who protects his patient from a prolonged illness is entitled to more than an office call. Sometimes the result may be arrived at by a composite fee. At present the whole arrangement is a matter of local custom but some equitable, workable basis must be devised.

I would like to refer briefly to a few specific conditions, adequate consideration of any one of which would take more time than is available for my whole paper.

Hæmaturia.—Blood in the urine is nearly always a symptom of serious trouble. A sudden painless bleeding is often the first sign of bladder or renal tumour, too often we see patients who give a history of having had several attacks and have been given a bottle of medicine or a reassuring pat on the back. A patient with painless hæmaturia should be referred for cystoscopic examination the day he reports. There is no excuse for delay.

Penicillin and the various sulfa drugs do perform wonders in many urological disorders. They fail in many cases and the reason is that the infection is only a symptom of an underlying condition. If your patient does not respond readily to this therapy refer him for study. Congenital abnormalities, strictures, stone or other organic lesions may be responsible for the persistence of infection. Remember that sulfa drugs can cause a lot of urinary trouble on their own responsibility. Do not try for fancy blood concentrations of these drugs unless you are watching the urinary output closely.

Prostatic problems.—To the general practitioner I say, do not be too definite in your suggested special treatment for operation. There is no ideal prostatic operation. The best type of operation depends on the disease present. The urologist must decide which particular procedure in his hands offers the most for the patient. Many urologists feel that most prostates should be resected, others reserve resection for special types of obstruction. Some urologists are good resectionists, others are not so adept at the operation. Remember a well performed suprapubic prostatectomy is a very satisfactory operation for the patient. The mortality and morbidity compare very favourably with that of resections. The true picture about resections will never be known. Those of us in smaller

communities who see our own grief as well as that from larger centres have a wholesome respect for resections. We realize also that many prostates are resected on findings which would not be considered sufficient for suprapubic procedures. The family doctor usually sees the man with his first retention. Remember the man's life and disability often depend on that first catheterization. Be gentle and if you have some difficulty inserting a catheter and are finally successful do not remove the catheter but tie it in. Remember the patient will need relief again in a few hours. The congestion following your manipulation may be enough to make a second catheterization impossible. If you are not successful do not use force or metal instruments, send for your urologist, if he is not available do a suprapubic cystotomy and insert a tube. Any doctor who uses a scalpel at all should be able to do a safe cystotomy. It may be a life-saving measure. Trochar tapping of the bladder is mentioned only to be condemned as an unsafe procedure.

Stone and colic.—Do not let your patient with stone or colic suffer unduly hoping that the stone will pass. Consult your urologist early. Many will pass spontaneously, passage of others may be aided by instrumentation while others must be removed by open operation. A neglected stone may endanger the kidney. The sooner the urologist sees the patient the better chance he will have with conservative measures.

Intravenous pyelography has become a valuable asset to our diagnostic armamentarium. Most urologists use it fairly freely, but with a keen realization of its possibilities and limitations. These limitations are not appreciated by the men using the procedure only occasionally. Very seldom do we find that an intravenous pyelogram will give us a diagnosis of itself. When we realize that the absence of a shadow on the film may mean either a non-functioning kidney or a normal kidney and that our best films are seen in cases of partial ureteral obstruction, we realize that there are limitations to the procedure and the readings must be interpreted along with other findings.

In conclusion I would say to the general practitioner the urologist can help you in many ways besides those I have mentioned. He realizes that men, women and children can have the same urologic disorders. He can help with the diagnosis of upper abdominal masses and shadows. He can tide the pregnant patient over her pyelonephritis of pregnancy with safety to mother and child. His catheters up the ureters will make hysterectomies easier and safer. He is conservative in his treatment of injuries involving the urinary tract. Consult your urologist early.

To the urologist I say, take the general practitioner into your confidence and keep constantly in mind that your urological diagnosis must fit the patient's symptoms and condition. For instance, a few urological complaints and pus cells in the urine of a patient may be there, not as the result of a silent stone but as the result of an early serious gastro-intestinal condition such as diverticulitis or gastric carcinoma.

To the young urologist.—Do not be afraid to get away from the university centres. There are many communities where a urologist can lead a happy, professional life. However, do not choose too small a community. It takes a population of at least 50,000 people to provide a reasonable existence for a urologist.

I have tried in this discussion to mention several of the points of relationship between the urologist and the general practitioner. I can only close by once again stating that the best relationships exist where there is mutual confidence in honest, fair dealing.

REFERENCES

1. KEY, J. A.: *J. Bone & Joint Surg.*, **29**: 1, 1947.
2. Minutes of Proceedings and Evidence No. 5, Special Committee on Social Security, House of Commons, p. 149, Session 1943.

VICTOR ROBINSON died in New York City on January 15, and the world of medical history has been robbed of one of its most striking figures. Born in the Ukraine on August 16, 1886, Victor was taken in infancy to the United States of America, where his father Dr. William J. Robinson, became one of the early advocates of birth control. After studying for two years at the New York University Law School he turned to pharmacy, taking the Ph.G. at the New York College of Pharmacy in 1910, the Ph.C. at Columbia in the following year, and the M.D. at the Chicago College of Medicine and Surgery in 1917. He entered the field of medical history as he had entered several others—out of curiosity. For thirty-eight years Victor Robinson devoted himself with dogged perseverance and unquenchable enthusiasm to the pursuit of this subject, successfully playing the part of author, editor, lecturer, and radio speaker. A prolific, facile, and entertaining writer, one of his best-known works is *Pathfinders in Medicine*, which appeared as early as 1912. His last book, *Victory over Pain*, was published just before his death. For many years he edited the monthly magazine *Medical Life*, at one time the official organ of the American Society of Medical History. He was appointed professor of the history of medicine at Temple University Medical School, Philadelphia, in 1929, and lecturer on the history of nursing in 1937.—W.R.B., *Brit. M. J.*, p. 275, February 15, 1947.

COMMON CAUSES OF INDIGESTION AND ABDOMINAL PAIN IN PATIENTS WITH NEGATIVE FINDINGS*

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DAILY I see patients who, in spite of much complaint of indigestion and abdominal distress or pain, have come through several careful medical overhaulings with negative reports, and in whom, according to the roentgenologists there is nothing significantly wrong with the œsophagus, stomach, duodenum, gallbladder, small bowel or colon. To be sure, in many of these cases, the roentgenologist tried hard to help the clinician by reporting little peculiarities of contour or behaviour that he had noted here and there, and oftentimes this was unfortunate in that it led to the performance of a useless laparotomy. I am glad that where I work the roentgenologists do not try to help me out with placebos of diagnosis such as ptosis, spastic colitis, adhesions, a slowly emptying gallbladder or "probable chronic appendicitis". If all physicians in this country were to ask their roentgenologists not to write a page or two for each "negative" report but to say simply, "I saw nothing significantly abnormal," this would do much to improve medical practice. The trouble is that today a consulting roentgenologist fears that if he does not always make a long report the physicians for whom he works will think that he has not examined the patient carefully enough. Actually, the internist should expect his roentgenologic confrères to report normal findings in a considerable percentage of the dyspeptics referred them for examination, and he should lose faith in them if too often they report organic disease.

The Need for Determining the Exact Type of Functional Trouble Present

Obviously, it is a highly creditable accomplishment when a physician makes the diagnosis of a functional trouble and saves the patient from needless treatments and operations, but he must not stop there. Some internists simply say, "There is nothing the matter with you," and give a prescription for phenobarbital. While this will help a few patients, there are many it will not help and these will have to leave the physician's office dissatisfied and even bitter against him. A daily sedative may help persons whose nervous indigestion is due to jitteriness and nervous tension but obviously it cannot help a woman whose indigestion is due to food allergy, or to constipation, or to overwork or to the antics of a husband who is drinking in sprees. If a physician is to help these patients with a functional trouble, he must spend enough time with each one to learn what adverse influences have been at work and what can be done to remove them.

Nervous Breakdowns

Although I am supposed to be a gastroenterologist, many of the patients I see every week are suffering primarily from a nervous breakdown of some kind. Often I am saddened to see that because several physicians did not take much of a history, the correct diagnosis was missed and strenuous treatments were ordered which only wore the patient down a little more. In order to find out if the man before me has a nervous breakdown I usually begin by asking if he is able to work or to work comfortably. Often he says, "No"; that for a year or more, work has been either difficult or impossible. Perhaps I ask then what would happen if he were to go back to his store and try to sell a bill of goods. The answer usually is that he would soon get very nervous, the sweat would break out on him, his head would tighten up and he would feel as if he were going to faint or be ill; he would have to excuse himself and go somewhere to lie down.

My next question is, Can the man read? And his answer is that he cannot; he has not much interest in it, the lines seem to run together or get fuzzy, his eyes feel tired, his head tightens up and he forgets a paragraph before he has finished reading it. Usually these patients cannot sleep well; they cannot make decisions, and some become overemotional so that they break down and cry.

Once I see that a patient's main trouble is a nervous breakdown, my next question is, How did he get it? Perhaps he overworked for years, or he went through great grief or strain, or he had a bad attack of influenza, an automobile wreck or a couple of operations in close succession. If he did not have some such excessive strain then I fear that he broke simply be-

* Read at the meeting of the Ontario Medical Association, Toronto, Ont., May 16, 1947.

cause he inherited a poor nervous system. Often this idea is strengthened when I learn that the man's sense of fatigue is worst in the morning when he wakes and that it tends to wear off in the late afternoon or evening. The man with a good nervous system but much overwork generally feels his fatigue coming on in the afternoon; he has to force himself to keep going after three in the afternoon. Another hint as to the diagnosis can be got by asking if a vacation was taken and if it helped quickly. The man who overworked will say that a week or two made him feel like a new man while the psychopath will say that after a year of idling he was no better.

The Highly Nervous

A great many of the persons who go to the internist complaining of indigestion are just nervous, jittery, overly irritable and hypersensitive. Many are too greatly worried over their symptoms; they make up worries; they are fuss-budgets and perfectionists. Most of their troubles are due, I believe, to a poor nervous inheritance. Many of the most nervous or psychopathic or poorly adjusted of these persons are what I call "relatives of the insane". When I ask carefully and tactfully enough about the mental health of members of the family I usually get a history of some who were either insane or pretty close to it. After forty-two years of practice I am convinced that many of the symptoms I hear about every day are due to this type of poor nervous inheritance. I suspect that the curse which in one ancestor injured the brain enough to produce insanity, in my patient injured the autonomic nerves or some centre in the hypothalamus which presides over their behaviour. As a result of the poor balance in the many little thermostat-like regulating centres at the base of the brain there are many nervous storms with outpourings of epinephrine, acetylcholine, histamine and sympathins. As a result the victims are constantly being upset and frightened by symptoms which are due to the nerves playing tricks with perfectly sound organs such as the heart, digestive tract, sweat glands, bladder, kidneys, uterus or ovaries. The victims can often be recognized in a moment because of their cold, clammy hands and cyanotic legs, with palpitations, fast pulse, missing beats, air hunger, waves of goose flesh, frequent urination, mucous colics or attacks of diarrhœa or of loud belching. Some of these persons bloat the minute they eat or even drink a glass of water; others regurgitate their food or get giant hives.

The Constitutionally Inadequate

As I have said many of the "chronics" whom we physicians see every day are relatives of the insane and their bad heredity is what is wrong with them. Many with this heredity are constitutionally inadequate persons who are frail and sickly throughout a lifetime. They cannot stand up well to the strains of life. Any little infection leaves them exhausted for months. A woman may seem fairly well until she graduates from college or has her first child and after that she is a chronic invalid, like her mother or aunts before her. The world is full of such persons and we physicians should learn to recognize them quickly and then to stop operating on them and dosing them with this and that. We cannot make them over into husky, normal persons no matter how many organs we remove from the abdomen. Most of them complain of indigestion of some kind. The women are constipated; they complain of dysmenorrhœa, of backache and often of aches and pains all over. Many of them get operated on six or seven times without being made much better. What they must be taught is to live within their narrow means of strength, to put up with many discomforts, to stop being afraid of cancer and death and to hoard their energies instead of wasting them.

"Mucous Colitis" or the Syndrome of the Sore Bowel or the Spastic Colon

One of the commonest types of nervous indigestion is associated with a bowel that is sore much of the time. I say "bowel" because the trouble is not limited to the colon. As is well known, in these cases the patient will from time to time pass considerable amounts of mucus in the stools. Such attacks are brought on commonly by nervous tension, an oncoming cold or perhaps by constipation or the eating of some food to which the person is allergically sensitive.

The great thing in handling these persons is not to reinforce their fear that there is something seriously wrong with the colon. We physicians should never show them the roentgenograms of their colon and there point out signs of spasticity, or a few diverticula, or a low position, or a long sigmoid loop or any other such harmless variant from what we wrongly

assume to be the norm. The colon is a most variable organ. We should never use the word "colitis" for a purely functional disturbance in a normal bowel. This can only confuse and frighten an already worried patient. We must say it is a normal bowel being upset by nervous or dietary factors.

The Dyspeptic

There are a large number of persons who appear to have been born to be dyspeptics all their days. Just why, it is hard to say. In many cases, of course, a normal digestive tract is interfered with by nervous action but in others there can be much indigestion without obvious nervousness. Some of these persons have what I call "the small laboratory disease". By this I mean that they have a digestive tract which gets along fairly comfortably so long as it is given only small amounts of food; but just let the person overeat, and he will get into trouble no matter what he puts in his stomach.

It may be that some of these persons, like carnivorous animals, have a short bowel while others have a flabby intestinal musculature or perhaps a poorly developed or atrophic type of gastro-intestinal mucosa. In others it may be that the polarization of the bowel, which normally causes waves to go easily caudad, is not well marked so that waves can easily go orad to produce regurgitation, heartburn and œsophageal distress. In other cases, it may be that the liver or the pancreas does not work efficiently; in others I suspect that during childhood an attack of severe dysentery or perhaps of unrecognized poliomyelitis, encephalitis, diphtheria or other disease associated with a neurotoxin, destroyed or injured some of the extrinsic or intrinsic nerves of the bowel and thereby left it overly irritable or crampy or with a poor gradient of forces.

In other cases, after getting a family history of much indigestion, I strongly suspect that the person was born with a poor gradient of forces in the bowel or perhaps some ectopic pacemaker which keeps sending off waves which run back toward the mouth to produce distress.

The Hypersensitive Digestive Tract

There are many persons whose indigestion appears to be due mainly to an overirritability of the digestive tract. One can easily recognize the syndrome on getting the story that the minute food is put into the stomach there is likely to be a sudden cramping or bloating or a feeling as if the bowels were going to move. The fact that the distress came so quickly and often after drinking only water shows that it cannot be due to any failure of digestion or to any allergy. I think that if in these cases one were to blow up a toy balloon quickly in the stomach one would get the same distress; it must be produced mechanically.

Commonly one finds this hypersensitive type of digestive tract in nervous, over-reactive persons who have a greatly exaggerated knee jerk.

Indigestion Due to Eating too Fast or too Much

Every so often one sees a stout person who complains of indigestion for which no organic cause can be found, and then the trouble may be due to the patient's love of eating more than the digestive tract can comfortably handle at one time. As a result, some of the food is not digested and it goes on into the colon, there to cause flatulence. The marked distension of the stomach may also send waves orad, to produce belching and heartburn.

Sometimes distress and indigestion are due to the patient's eating too fast.

Indigestion Due to Eating Under Bad Circumstances

Doubtless much of the indigestion of Americans is due to their habit of rushing out at lunchtime to wolf down a sandwich or two, perhaps while talking worrisomely about business. At other times the trouble may be due to eating while a family row is going on. There is also the indigestion of the harassed mother who by the time she has got dinner is tired out and in no mood to eat. Perhaps then, if there are bitter arguments at the dinnertable, or if the husband criticizes the food, the mother becomes ill.

At the Mayo Clinic many a patient makes the diagnosis for me by reporting that during his ten days' stay he has had no indigestion or gas or diarrhœa or whatever it was that caused him to travel far to seek relief. The reason for this is that the patient has been at rest and has been eating while free from tension and annoyance. That this is the explanation is shown occasionally when a flare-up of the old symptoms comes with the receipt of an annoying communication from home. All the patient has to do is to talk

over the telephone with an abusive wife or an unreasonable employer and he is ill again!

There are some persons so irritable that they can digest well only if they eat alone. This is particularly true of the irascible "relative of the epileptic".

Food Sensitiveness and Allergy

Many of the persons who complain of indigestion with bloating, abdominal pain and foul flatus are allergically sensitive to one or more foods. The physician should suspect such sensitiveness when the patient says that he has learned that he must never drink milk or eat eggs or some other food. In such cases it is possible that the indigestion complained of is due to other foods which the patient has not yet learned to avoid.

If the distress complained of is coming practically every day the patient should be put on an elimination diet. A simple one consists of nothing but lamb, rice, butter, sugar and canned pears, to be eaten for only two days. If it does not help in this time it is not likely to do so later. If the patient's distress comes only once in ten days or a month, he or she should keep a record of the *unusual* foods eaten before each upset. After a while a study of the record will show if the attacks always followed the eating of a certain food.

If the patient says that often he goes two or three weeks or a month or two without an attack of indigestion, the chances are that his trouble is not due to food allergy; certainly it is not due to the eating of any one of the commonly used foods.

Heartburn

A fairly common digestive disturbance is heartburn. When one asks the patient to show where the distress is, he usually runs his hands up over the lower half of the sternum. Many of these sufferers were born apparently with a tendency to heartburn because it runs in the family. The victim will have attacks off and on for years, especially when he loses his temper or smokes or drinks too much or eats certain foods.

Heartburn can be associated with ulcer but then the history indicates that it is not due to the ulcer. It does not come with the hunger pain, and frequent feedings which stop the pain will not help the heartburn.

The Mildly Insane

There is many a gastro-enterologist who would be greatly surprised if he were to learn how many of the patients who each month go through his office are more psychotic or insane than neurotic or tired. Many of the persons who complain bitterly of fatigue, loss of pep, feelings of auto-intoxication or aches all over are psychopathic. They go to the gastro-enterologist because they believe their troubles are arising in the colon or liver or stomach.

The gastro-enterologist sees many patients suffering from unrecognized forms of hysteria. They complain of abdominal aches or pains or curious bloatings. That the medical profession today does not always recognize hysteria and insanity is shown by the fact that commonly a psychotic patient bears on her abdomen the scars of several futile operations. One glance at such an abdomen should tell the physician much about the type of person with whom he has to deal. Only a poorly educated optimist would want to add another scar to the collection already there.

There are many persons, living fairly successful lives, who suffer often from the symptoms of a mild form of manic-depressive psychosis. When they feel well they may be too active and energetic, so that they do too much and get tired out. The mind races and they accomplish much; perhaps for a time they turn night into day. Then, partly as a result of such poor mental hygiene they get so tired they have to stop; they go into a kind of hibernation for weeks or months or for even a year or two.

Besides these manic-depressives, there are the shy, reserved and mentally inaccessible persons who have barely missed schizophrenia. They complain of curious functional syndromes. Other difficult patients are the hypochondriacs, who can never be entirely reassured or cheered up. They feel sure that they have a cancer or heart disease or that they are being poisoned by toxins arising in the colon. Some highly nervous or psychopathic women will get terribly tense and unreasonable for a week before the menstrual period. The gastro-enterologist sees also many of the women who have become depressed with the menopause. The important point about all these patients is that their troubles are due more to a psychosis than to a neurosis. Often they should be turned over, if possible, to a psychiatrist. He is the man most likely to help them.

SMALL STROKES

When an older person suddenly breaks down nervously and becomes psychically changed, the physician must always wonder if he or she has suffered from a thrombosis in some small artery of the brain. The victim does not have to have hypertension. If he or she did have hypertension it is typical of a stroke when after a dizzy spell the pressure drops to normal. The strongest point in the history is that the breakdown came suddenly; sometimes the patient's relatives can date it to a certain minute of a certain day. Another pathognomonic point is that the person, who before the change was mentally alert, active, efficient and optimistic, suddenly became slowed up, forgetful, irritable, unable to work and perhaps without any interest or joy in life.

These persons commonly go to the gastroenterologist or internist because when the thrombosis occurred in the little blood vessel up in the brain a wave of some kind went down the vagi to cause distress or pain in the thorax or abdomen. Often one learns that the physician who saw the patient right after the attack diagnosed acute indigestion or coronary heart disease, depending on where the paræsthesia was felt.

Many of these persons are seen by the gastroenterologist because the patient and his local physicians believe that his dizziness or vertigo or feeling of uncertainty is due to disease of the liver or stomach or colon. This is probably always wrong. Dizziness is not complained of by persons with hepatic cirrhosis, gastric ulcer or ulcerative colitis. In some cases the injury causing dizziness has been wrought in the inner ear or in the auditory tract. In that case there may be deafness or ear noises. In many other cases the injury is in the brain. Unfortunately, we physicians seldom diagnose a little stroke, partly because we seldom think of the brain as the locus of disease and partly because the diagnosis is so repugnant to the patient and his family.

In some of these cases the most striking symptom is a great loss of weight. Many a time I have seen a stout patient lose 50 or 100 pounds (22.7 or 45.4 kg.) after a small unrecognized cerebral thrombosis. Another important sign, pointing to a cerebral thrombosis, is the loss of proper grooming; a formerly able businessman will go out on the street with grease stains on his coat and vest. Another sign is sudden ageing with a loss of the former quick, strong step.

ENCEPHALITIS

When faced by a person with an unexplained nervous breakdown the internist must be on the watch for an inexpressive face, perhaps with little tics, and when his suspicions are aroused he must dig for the story of an attack of encephalitis. Every year I encounter a number of such cases. If questioned, the patient's wife may say: "That's right, ever since that curious spell of influenza Bill hasn't smiled like he used to, and he has been slowed up mentally and physically".

DIARRHŒA

In perhaps nine out of ten cases of diarrhœa I am unable to find any sign of organic disease in the digestive tract, and examination of the stools fails to show any parasites or ova. On questioning such persons I often find that they had a tendency to loose bowels most of their life, the trouble coming whenever they were excited or alarmed. Some remember that other members of the family had the same tendency. Most of these patients are nervous, overreactive or worrisome. Some are allergic to certain foods, particularly milk. A few will be drinking more water each day than they need and this tends to produce the diarrhœa.

I always suspect a functional type of diarrhœa: (1) when the patient has one or two large bowel movements and then is normal again; (2) when there are no bowel movements during the night; (3) when the patient remains well nourished; (4) when neither diet nor drugs have had much effect. A helpful laboratory test is the blood sedimentation rate, which is low in cases of functional diarrhœa and high in cases of chronic ulcerative colitis or regional enteritis.

It must always be remembered that even when some amœbæ have been found in the stools, the diarrhœa is often due entirely to a neurosis.

TABAGISM

I fear that we internists commonly fail to make a diagnosis of tabagism. Sometimes excessive smoking will explain the fact that a man feels run down, that he is thin and has nausea, heartburn, indigestion and abdominal distress. If he will only stop smoking for a few

weeks he may gain rapidly in weight and may feel immensely better.

Regurgitation

Every internist should know that regurgitation of food at mealtimes or immediately afterward, especially when it troubles a nervous or psychopathic or unhappy young woman, is always functional. It is not vomiting and it should never be called that. Regurgitation is seldom associated with nausea but it is often associated with epigastric pain which becomes troublesome if the patient does not allow the food to come up. I have never seen these patients helped by any operation.

This disease is sometimes associated with anorexia nervosa. Usually then the patient is a woman who is somewhat psychopathic and perhaps is caught in some unfortunate situation from which she cannot escape. Often a sex-hating mother holds her more or less a prisoner in the home.

Gastritis

Today gastroscopists are finding gastritis in about 40% of the patients whom they examine but usually it is hard to say how many of the symptoms are due to this finding. In many cases an atrophic or superficial gastritis appears to have no clinical significance. It is like the cholecystitis or ulcer that is so commonly silent.

Chronic Appendicitis

In my experience chronic appendicitis is a rare disease. I rarely see a patient in whom I dare make this diagnosis. When I do make it, the patient is usually a college student who was perfectly well until he or she had a distressing abdominal attack of some kind. Following this, studying was difficult and the person dragged around. In such cases the removal of the appendix often works a spectacular cure. In older persons the diagnosis of chronic appendicitis should practically never be made unless there is a history of recent attacks of abdominal pain which could have been attacks of acute appendicitis.

Adhesions

Where I work we internists never make a diagnosis of adhesions from one year's end to the other, unless perhaps the symptoms appear to be due to attacks of partial intestinal obstruction following an operation. As Osler said, "Adhesions are the refuge of the diagnostically destitute".

Diverticulosis and Diverticulitis

Diverticulosis of the colon is commonly met with in persons past forty years of age, and in all but a very few cases the finding should be disregarded; it had better not be mentioned to the patient because it can only worry him. My impression is that diverticulosis rarely produces symptoms.

Diverticulitis, or an inflammation of one or more of the little pouches, is in my experience, a rare disease. I think so because sometimes I will go several years without encountering a single case. The syndrome is usually one of chills and fever, with a little intestinal obstruction, and a mass in the left lower quadrant of the abdomen. Occasionally the bladder will be involved and then fæces and gas may appear in the urine. The sigmoidoscope will not slip in well because of adhesions binding the sigmoid flexure. Roentgenologic examination will show much spasm at the end of the descending colon where it turns into the sigmoid flexure. At that point there will be a contracted segment of bowel, perhaps 3 inches (7.6 cm.) long, thickly covered with diverticula. The blood sedimentation rate will probably be around 50 mm. in an hour; the leukocyte count will probably be up a bit, and the patient will have fever for a few days. He will probably feel like staying in bed.

Pseudo-ulcer

Every year I see several persons who have distress or pain in the epigastrium which comes when they are hungry and may be relieved by the taking of food. Repeated roentgenologic studies will fail to show any deformity in the duodenal cap. Usually the patient is not disturbed at night and he may have gone years without development of any complications of ulcer such as hæmorrhage, perforation or pyloric obstruction.

In my experience these pains are usually brought on by constipation, by the eating of food to which the patient is sensitive or by the toxins of an oncoming cold. The important thing to remember is that there is such a thing as pseudo-ulcer, and one must not blame the roentgenologists if in some cases of hunger pain he cannot see anything wrong with the duodenal cap.

PSEUDOCHOLECYSTITIS

Every year I see a number of nervous and unhappy women who complain of a constant ache or misery in the region of the liver. Usually there is no history of colics and often the gallbladder has been removed without any improvement in the situation. The fact that the patient's distress is so constant, and of such long duration, usually satisfies me that I am dealing with a psychoneurotic ache. True cholecystitis is far more likely to produce intermittent attacks of severe pain with, in between, a flatulent indigestion. In a few cases of pseudocholecystitis the distress is out in the abdominal wall and is due to fibrositis or to arthritis around the spinal column, with involvement of intercostal nerves. In rare cases the distress is due to the eating of some food to which the patient is highly sensitive.

PSEUDOAPPENDICITIS

As every physician and surgeon knows, there are many persons who continue to have an ache or a burning or a pain in the right lower quadrant of the abdomen long after the appendix has been removed. In many of these cases, the distress is probably a psychosomatic one, referred out from the brain; in others it may be due to fibrositis or neuritis associated with arthritis of the spinal column. In a few it may be due to myositis in the iliopsoas muscle. Sometimes the distress is part of the common sore colon syndrome; rarely it is due to disease in the right kidney, or amœbiasis or terminal ileitis. In some cases I do not know what it is due to. If when I see the patient he still has his appendix I have no desire to have it removed if the ache is constant or if I find by pinching the skin and fat that the soreness is out in the abdominal wall. I will have no desire to have appendectomy performed if the ache is unaffected by eating or defæcation or the taking of a laxative or the passage of gas. That will mean that the lesion is not in the digestive tract.

MIGRAINE

Many of the women I see every week, complaining of such troubles as severe fatigue, poor health, headaches, dizziness, nausea, spells of vomiting and an inability to stand up to any extra strain in life, are primarily migrainous, and this is what is wrong with them. They were born that way and they will probably always be frail and ailing.

It is unfortunate that these persons so commonly forget to complain of their headaches. Perhaps they have concluded that there is nothing that can be done about them. Anyway, it is unfortunate that they do not mention them because it can be so helpful to the physician to know that he is dealing with a migrainous person. This fact can explain so much of her illness. Because these women seldom tell their history properly, the wise physician must think of migraine the minute he sees an attractive, well-dressed, wide-awake woman with expressive eyes, mobile features and much quickness of thought and movement.

I have rarely seen this type of migrainous woman permanently helped by any type of operation, except perhaps hysterectomy. The best way to help these persons is to teach them to live with their handicap and to avoid excessive fatigue, tension, excitement, worry and annoyance.

CONSTIPATION

Many dyspeptics are suffering primarily from constipation. When the lower end of the bowel is distended and blocked with a fæcal plug, ripples tend to run back toward the stomach, producing epigastric distress, perhaps flatulence, nausea, hunger pain or soreness in the bowel. Such a person will feel made over and full of energy for a few days after the bowel has been well cleaned out by castor oil or an enema.

ABDOMINAL DISTRESS OR PAIN DUE TO ARTHRITIS, FIBROSITIS OR NEURITIS

I have already touched on the fact that some of the persons whom the gastro-enterologist sees each week owe their abdominal pain or distress, not to anything in the abdomen, but rather to something out in the abdominal wall. Often this fact can be established in a moment by grasping and pinching a fold of skin and fat over the anterior abdominal wall. If the patient winces abnormally and does not do so when deep pressure is exerted it will be obvious that the soreness is in the superficial tissues. Usually such a patient will admit on questioning that he or she is subject to attacks of lumbago, wry neck, cricks in the back, sacro-iliac disease, sciatica or arthritic pains with stiffness in several joints of the body. A more frequent recognition of this

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common disease would save thousands of persons from the futile operations now being performed.

THE DIAGNOSIS OF A NEUROSIS CANNOT SAFELY BE MADE BY EXCLUSION

In closing, I should like to point out that we physicians cannot safely make a diagnosis of functional disease purely by exclusion, because too often the laboratory technician or the roentgenologist turns up something which, if we are not already certain of the diagnosis, may be accepted as the cause of the symptoms. For instance, if I have learned from the history that I am dealing with a highly migrainous woman, the roentgenologist's report of duodenal stasis will not interest me or lead me astray; I know that it can often be seen in the case of migrainous persons, especially on a day when they are feeling bad. Similarly, I will not get excited over the roentgenologic diagnosis of duodenal ulcer, if I know that the patient's symptoms are all those of a mucus-forming sore colon and her only attack of hunger pain came twenty years before.

With all the wonderful advances that have been made in laboratory and roentgenologic diagnosis, we physicians must still make many diagnoses ourselves with the help of a good history and a shrewd size-up of the patient. One just cannot safely practice a sort of decerebrate medicine in which the diagnoses are made purely in the laboratory and the roentgenologic darkroom, and in which no clinical wisdom is employed.

SUMMARY

Many syndromes are described in which the diagnosis cannot be made by laboratory or roentgenologic studies, but only from the taking of a good history.

"I have been in contact with a few men who have known what it meant not to be put off the main issue. I have known just a few persons who have been able to resist distraction because they have known what the main issue is, because they have seen a clear road to a straight goal. . . . Most of us most of the time are easily diverted because we are by no means certain that the alleged distraction is not after all, perhaps, the paramount thing we have been looking for. That is why so many of us vacillate from one goal to another, from one interest to another and end up by being simply bewildered, or with a deep sense of having been ultimately defrauded."—Prof. Irwin Edman (*Philosopher's Quest*).

IMMIGRATION TUBERCULOSIS*

J. D. Adamson, M.D. and J. N. Edmison, M.D.

Winnipeg, Man.

IMMIGRATION from any part of the world may create a hazard to the health of Canadians. Peoples originating from warmer countries are all potential carriers of protozoan and parasitic diseases. Fortunately, our hygienic standards and the nature of our climate will give us a large degree of protection, and it is likely that, with the possible exception of amœbic dysentery, none of these diseases could create a serious public health problem. Widespread infestation with these organisms could, however, so impair the general health of immigrants as to render them incapable of making a living.

Tuberculosis is in quite a different category. It will be brought in from any part of the world from which we may draw settlers, and its importation could cause greater havoc than in any other country.

The truth of the first proposition—that immigrants from any country will bring tuberculosis to us—follows from the fact that the tuberculosis death rate in Canada is one of the lowest in the world. The actual amount of tuberculosis in devastated Europe is known to be very high, though exact figures are not available. Only in Britain, and possibly in some of the Norse countries has tuberculosis been kept in check during the war years, and even in these countries, it is much more common than in Western Canada. In Asia and Africa tuberculosis has always been rampant, and has been increased by war conditions.

The importation of infected people would be particularly dangerous to Canada for the following reasons.

Presumably a large proportion of new settlers will be sent to the less settled parts of Canada—the Prairie Provinces. In these areas the death rates from tuberculosis (excepting isolated Indian settlements) are among the lowest in the world, and the younger generation is growing up quite unprotected by previous infection. The introduction of many foci of infection into such communities could have a devastating effect.

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Some estimation of the amount of tuberculosis to be expected from mid-European immigration may be made from a study of 2,876 Polish soldiers who were brought to Canada late in 1946. These men had formed part of the Polish force which fought with the British. All of them had been in service since early in the war, in Russia, North Africa, Sicily and Italy. They were sent to Canada without having had x-ray examination. On arrival in Canada they were sent to various Provinces to be placed in agricultural work and then had radiograms of their lungs. Those who had suspicious plates were hospitalized and finally segregated in the Department of Veterans' Affairs hospital in Brandon, Manitoba. They arrived in Brandon in January, 1947, and have since been kept under observation on sanatorium routine. Frequent x-rays, sputum analysis and other observations have been done in order to determine the amount and activity of the disease and the proper disposal.

The final diagnosis in this group is shown in Table I.

TABLE I.

No significant disease	11
Pulmonary T.B.	84
Pleurisy with effusion	4
Pott's disease	1
Lung cysts	1
	101

The 11 cases that were finally considered to have no significant disease, were originally diagnosed tuberculous on the evidence of x-ray films taken at various places in Canada. In none of these cases could the diagnosis be confirmed on subsequent studies. Some of them had definite parenchymal shadows in the original film associated with minor upper respiratory symptoms. On arrival in Brandon some weeks later, all signs and symptoms had disappeared, the chest films were normal, and all laboratory tests were negative; these cases were therefore considered to have been mild pneumonitis secondary to upper respiratory infection. Some others in this group of 11 had subtle equivocal shadows which were finally thought to be without significance.

There was one case diagnosed as cystic disease. This left 89 cases of tuberculosis, *i.e.*, 84 pulmonary, 4 pleural and 1 Pott's disease. This is an enormous yield from a group of 2,876. This would mean a rate for all forms of 3,094 per 100,000 or 3.09%; for pulmonary and pleural tuberculosis alone, it is almost exactly 3%.

This is a very high incidence of tuberculosis in this age and sex group, as can be appreciated if it is compared with what was found on radiological examination of recruits in Canada. Roughly it can be said that 1% of these were rejected on the evidence of the x-ray film. Of these, about 1/3 or 0.3% of all recruits were considered to have significant tuberculous lesions which justified referring them to Provincial organizations for further examination and treatment. In comparison with this, it will be seen that the Polish group showed an incidence of similar lesions ten times as great. In fact, the amount of tuberculosis among them is roughly comparable to what is usually discovered in our untreated Indian communities.

The extent and activity of the disease in the 84 pulmonary cases are shown in Table II.

TABLE II.

Extent		*Activity*	
Minimal	45	Active	32
Moderately advanced	34	Quiescent	6
Far advanced	5	Arrested	24
	84	Healed	22
			84

These tables show that a large proportion of the confirmed pulmonary cases (excluding pleural cases) were minimal (53.7%). After adequate observation only 32 of the 84 (38%) were thought to be active. By the end of April, 1947 only 35 (41%) of the original 84 were retained in sanatorium for active treatment. In general we felt that nearly all the lesions were old and had reached a considerable degree of stability. Constitutional and local symptoms were very slight even in those with large lesions. Positive sputum or direct smear was found in only five cases.

The situation, therefore, is not quite so bad as the original discovery of the 3% figure would indicate. The actual number who will require prolonged treatment is 1.2% of the whole group. These 35 men will require sanatorium treatment for periods varying from six months to many years. Twenty of them already have pneumothorax and four are being considered for thoracoplasty. The cost to the taxpayer of having acquired 3,000 settlers will obviously be very high.

It is likely that there was less tuberculosis among this group than would be found in a random sample from Middle Europe. All of these men had lived through years of arduous army life. As a result, those with much tuberculosis had been eliminated. Also, they were all given a general medical examination before being sent from England to Canada and presumably very far advanced cases were stopped. In a general way, these men were an exceptionally good looking lot; no one would have suspected on casual examination that they carried a high incidence of tuberculosis.

This experience with Polish soldiers demonstrates the public health hazard involved in immigration. It suggests that unless all prospective settlers are examined by radiogram before they come to Canada, we will introduce an enormous amount of tuberculosis. The cost of the treatment of these will be great, but the more important result will be spreading of tuberculosis among our own people.

This problem has been studied by the Canadian Tuberculosis Association, and it has been recommended that all prospective immigrants have a chest radiogram before embarkation for Canada, and that those with active or doubtful lesions be rejected. It is understood that this policy is being adopted by federal immigration authorities. Such a practice will largely obviate the danger, but in spite of this, many latent cases will be admitted, who in the course of a year or two will develop open lesions. For this reason, each new immigrant should have a radiographic examination, by Provincial tuberculosis organizations, every year, for two or three years.

RÉSUMÉ

La tuberculose provenant de l'immigration serait désastreuse si elle sévissait dans les provinces indemnes et non vaccinées par des contacts antérieurs. On a vu un assez grand nombre de tuberculeux chez des soldats polonais immigrés au Canada depuis la guerre: environ 3%. L'acquisition d'immigrants tuberculeux augmente nos taxes. Il faudra se méfier des immigrants d'Europe centrale où la tuberculose a sévi cruellement durant la guerre. Tout immigrant sera radiographié avant son départ et les tuberculeux seront refusés. Les cas latents devront être ré-examinés ici une fois par an pendant 2 à 4 ans. JEAN SAUCIER

BLOOD LOSS IN LABOUR

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HÆMORRHAGE being one of the most common causes of maternal death in labour, the subject of blood loss has always been of very great interest to me. The matter contained in this report is the result of efforts made by me to ascertain how much blood is lost normally by a woman at the time of delivery. The work was begun in an effort to educate myself and those working with me in the Obstetrical Department of the Saint John General Hospital in the matter of blood loss; how much is normal, and what we can do to control and lessen this loss.

This is not a complete analysis, but rather a preliminary report, as the matter contained here does not take cognizance of many factors such as age, parity, type of delivery, anæsthetic, etc.

The apparatus used was patterned after that used by Dr. Frederick Fortin at the Lewis Memorial Hospital in Chicago. It consists of a right-angled tray which slips under the patient's buttocks and over the edge of the table; a small holder that is fastened permanently to the table-leg; and a swinging arm that fits into the holder and supports a graduate. With the exception of the holder which is fastened to the table, the apparatus is sterile, the tray being slipped under the patient after she is draped, the arm being placed in the holder, and the graduate in the arm. The graduate is swung back and forth with the knee so that when the amniotic fluid is escaping the graduate is swung clear of the tray drip, and when the blood is escaping is swung under the tray drip.

The first step in the investigation was to make some statistics of estimated blood loss, both my own estimation and those of others working with me in the department. This was carefully gone into, and it was found that the ordinary estimations, most often in ounces, sometimes in c.c., ranged from 3 oz. (90 c.c.) to 10 oz. (300 c.c.). In some of the case reports where it was stated that the patient had bled considerably, the blood loss was only shown as 15 oz. (450 c.c.) and in the small amounts, none were less than 3 oz. (90 c.c.).

It seems to me later when the measuring had been attempted, that these estimates were low, as the average estimated in about 300 cases gave only about 273 c.c. loss.

The next stage that I carried out was to measure blood loss in about 300 cases, in which the following routine was carried out. No uterine constrictant was given the patient until the placenta had been delivered. Following which pituitrin intramuscularly or ergotrate intravenously was given. An effort was made to conduct the third stage as carefully as possible. The fundus was watched carefully and was not allowed to fill up with blood, and as soon as the placenta had separated it was expressed. Following this procedure we found that often a few minutes after the expression of the placenta there was a relaxation of the uterus, and that more blood was lost then than during the time of the separation. It also seemed to me that the placenta separated and could be expressed in a much shorter period of time than we had previously allowed for it. Following this routine, 308 cases averaged a blood loss of 504 c.c.

I now conceived the idea that the greatest blood loss did not take place during the time of separation, which was quicker than I had previously thought, but that after the placenta separated and was in the lower uterine segment, the uterus relaxed and the bleeding took place. I also believed that, were medication for uterine constriction given immediately at the end of the second stage, by the time the placenta separated the medication would begin to be effective, and the uterus would remain well contracted, thus preventing the second gush of blood. With this in mind I first used pituitrin intramuscularly. This was used with some 300 cases, and from the statistics given below, it seemed to me that it was preventing some blood loss, as, following this routine 300 cases averaged a blood loss of 255 c.c.

However, the amount of time required for it to act seemed to be greater than the amount of time which the uterus stayed firm, and with the next lot of cases I followed the same technique, except that I gave ergotrate intravenously immediately the baby was born. This has further helped to cut down the blood loss in the last 400 cases. There has been a definite improvement as shown by the figures, as 400 cases averaged a blood loss of 194 c.c.

There are so many factors that have a bearing on the blood loss, such as marked anæmias; prolonged labour causing fatigue and partial atony; multiparity, probably causing loss of elasticity in the uterine tissue; over-distension due to multiple pregnancies; hydramnios, etc., that it is hard to draw too many definite conclusions from this report. Another factor, which has a bearing, the improper management of the third stage, we have tried to correct, but concerning a last factor, episiotomy and lacerations I would like to say a word.

In many labours which resulted in instrumental deliveries, especially deep transverse arrests, persistent posteriors and breeches, where the presenting part did not compress and thin out the perineum, the resulting episiotomy wound bled freely. No effort has been made by me to block off the vagina and measure the blood loss from the episiotomy separately, but by comparing the large number of cases where episiotomy was done with those without episiotomy, I am completely satisfied that the blood loss from the episiotomy was often greater than that from the placental site. This, I believe, is also true in those cases which have lacerations of the cervix or vaginal wall. In the straight cases where the vagina and perineum are intact, the blood loss was definitely lessened.

300 primiparas with episiotomy—average—288 c.c.
300 multiparas without repair —average—147 c.c.

I am sure that a great number who have not used uterine constrictants at the end of the second stage and were taught, and still believe that this is not a safe practice, are wondering at this point about cases of retained placenta, or even of adherent placenta. I believe that I have proved to my own satisfaction that those fears are unjustified. When pituitrin or ergotrate is given the active or upper segment of the uterus contracts and the lower or inactive uterine segment does not contract. The fundus of the uterus contracts and thickens and pushes the placenta downward. In over 1,000 cases I have had to go into the uterus for the placenta on only 7 occasions, only 1 of these was adherent, and 6 were retained. I could introduce my hand quite easily through the lower uterine segment, and my fingers into the uterine cavity proper, and because it was contracted and firm, I could remove the placenta fairly easily and certainly more safely than from a

soft, boggy, non-contracted uterus, besides which there was little bleeding. These 7 cases averaged 195 c.c. blood loss.

I would wish to call your attention to one possible danger which I have had always in mind, and which I have so far not experienced —that is, the possibility of unrecognized twins. I believe that if the ergotrate were given intravenously before the second baby was born, one could easily find oneself in serious trouble. For that reason, it is a rule in our clinic that before the ergotrate is given, the fundus must be palpated for a possible second baby.

The total blood volume of the body is increased during pregnancy by about 23 to 25% or between 400 and 500 c.c., so that a woman could lose up to that amount in labour before she begins to drain her somatic circulation. I have been able to find the following figures on blood loss in labour as given by other investigators at earlier dates.

	Cases	
Pastore	500	244 c.c.
DeLee and Hurst		250 c.c.
Williams	1,000	344 c.c.
Ashfield	2,058	505 c.c.

It would seem to me that if by proper management of the third stage one is able to bring the average blood loss in labour below the average increase in blood volume during pregnancy, then one gives the woman a blood transfusion from her uterus into her somatic circulation by that much.

As a check on this, these latter cases which have had their ergotrate at the end of the second stage, have had their blood count at the time of discharge compared with the blood count of those earlier cases where medication was not given until after the delivery of the placenta, with the result that there is an improvement of 8% in the hæmoglobin.

At the beginning of this paper, I stated that this was a preliminary report only, and many factors were not taken into consideration. I know that there are many more influences than those which I have taken into account, but I do feel that blood loss in labour could be kept to a minimum by (1) allowing sufficient time for the placenta to separate; (2) expressing the placenta from the lower uterine segment as soon as it is separated; and (3) by giving the uterine constrictant as soon as the second stage is finished.

CONCLUSIONS

1. By following these simple rules blood loss is definitely controlled and lessened.
2. A large part of the blood loss is from other than the placental site.
3. It is perfectly safe to give a uterine constrictant at the end of the second stage.
4. It is a normal human tendency to underestimate unusually large blood loss, and to overestimate small blood loss.

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RÉSUMÉ

Quelques règles fort simples permettent de maîtriser les hémorrhagies et d'en amoindrir les effets. Il faut se souvenir que la plaie placentaire n'est pas la seule source d'hémorrhagie et que l'écoulement sanguin provient aussi d'ailleurs. Il est tout à fait sûr d'administrer un constricteur utérin au second stage. On s'alarme parfois trop peu devant de grandes hémorrhagies, et on s'affole devant de petites.

JEAN SAUCIER

RECENT ADVANCES IN DERMATOLOGY*

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IN no other decade has the field of dermatology been enriched by so many accretions to our knowledge. Most of the advance has been in the direction of new and improved therapeutic procedures, with little accumulation, by comparison, of material of purely academic interest. But after all the cure of the patient is our primary objective and much has developed during recent years of real significance for him. Time does not permit reference to all that is new in dermatology and I propose to mention only what I think is outstanding.

Sulfonamides. — At the 1944 meeting in Toronto a resolution was passed by this Section deprecating the external application of the sulfonamides except in special circumstances. It was pointed out that: (1) They have a high sensitizing potential and the sensitization so produced may prevent the later systemic use of the drug at a time when its use might be urgent. (2) Their therapeutic effectiveness when used externally is not significantly greater than that of some other remedies with

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lower sensitizing properties and which are unlikely to be used systemically.

Opinion has not changed in that respect in the interval and the sulfonamides are still regarded as unsuitable as a rule for topical use in the treatment of diseases of the skin. On the other hand there are four diseases in which the systemic use of sulfonamide produces results not surpassed by any other drug. (1) Dermatitis herpetiformis, for which sulfapyridine is the best of the sulfonamides. The reason for the effectiveness of the sulfonamides is not understood and offers an excellent field for research. (2) Chancroid. (3) Lymphogranuloma venereum. (4) Erysipeloid. For the last three sulfadiazine is the drug of choice.

One or other of the sulfonamides is sometimes useful in actinomycosis, blastomycosis, sporotrichosis, Madura foot, acrodermatitis continua, mollusca contagiosa and recurrent streptococcal cellulitis. For the latter long continued use is necessary to prevent recurrence.

Penicillin.—Our resolution of 1944 concerning the sulfonamides is applicable to penicillin for the same reasons. As many as 6% of persons to whom penicillin is administered by one route or another may become sensitized, thus making it difficult and sometimes impossible later to use the antibiotic at a time when its administration might be life-saving. It should therefore not be used as a topical application except in special circumstances and only after due consideration of its sensitizing possibilities. The same applies to the use of penicillin tablets or lozenges for minor infections or for the prevention of possible infection following the extraction of teeth.

Penicillin is of use in acne conglobata, burns, carbuncles, erysipelas and other types of streptococcal infection. Its principal use in dermatosyphilology is in the treatment of syphilis. Sufficient time has not elapsed for its full therapeutic evaluation in this disease, but we at least know that it cannot be depended upon to cure syphilis, alone and unsupported by the older remedies.

The following resolution passed at the Fourth Western Canada Conference on Venereal Disease Control held in Winnipeg in May of this year succinctly sums up our present opinions on the place of penicillin in the treatment of syphilis.

Whereas the present status of penicillin in the treatment of syphilis has not yet been fully evaluated; and the treatment of syphilis with penicillin alone cannot be relied upon; and the use of penicillin in certain forms of syphilis is of unproved value.

Be is therefore resolved that the Fourth Western Canada Conference on Venereal Disease Control, pending further evaluation of this form of therapy, recommend the following as a guide for the four Western provinces:

1. That the use of penicillin be restricted to the following forms of syphilis; primary syphilis; secondary syphilis; syphilis in pregnancy; congenital syphilis; late osseous and cutaneous syphilis. For patients with neurosyphilis, for whom it has been decided that fever therapy is indicated, penicillin should be given concurrently with the fever treatment.

Visceral syphilis, especially of the liver, should be treated with caution and with smaller doses of penicillin, administered over longer periods of time, preferably in repeated courses. The treatment of cardio-vascular syphilis should for the present, be restricted to bismuth and potassium iodide and small doses of arsenicals.

2. In early syphilis, penicillin therapy should be fortified with arsenical and bismuth compounds.

3. For the average adult: (*a*) the minimum dosages of these compounds in early syphilis should be; penicillin, 2,400,000 Oxford units in aqueous solution; mapharsen, 10 injections 0.04 gm. to 0.06 gm.; bismuth, 5 injections. (*b*) The following schedules of treatment should be employed: penicillin (in aqueous solution) 40,000 Oxford units every 3 hours for 60 doses; mapharsan, 0.04 to 0.06 gm. twice weekly for five weeks; bismuth, one injection weekly for five weeks. The treatment is thus completed in five weeks, but it is advisable to give an additional five injections of bismuth.

4. If penicillin is used with a delaying medium such as peanut oil and beeswax, the minimum total dosage should be 3,200,000 Oxford units administered in doses of 400,000 Oxford units once daily for eight days.

5. In other than early syphilis, penicillin and arsenicals should not be administered without a preliminary course of bismuth to minimize a possible Herxheimer reaction.

In 1929 Fleming gave the name penicillin to a substance resulting from the active growth of *Penicillium notatum* on a specified medium. We now know that the substance is not the simple one Fleming thought it might be, but consists of several penicillins with different chemical compositions. There are four well known ones but also probably others. To those four the letters G.F.K. and X. have been assigned, and they vary in their therapeutic action. Penicillin G is available in pure crystalline form and is used as a basis for standardization. The Oxford unit is the activity of one microgram of crystalline penicillin G on a strain of *Staph. aureus.* That action is represented as 1,667 Oxford units. The penicillins vary in their effect on different organisms. It has been found that penicillin K is only 1/16 as effective on *Spirochæta pallida* as is penicillin G and since the product of each manufacturer differs in its content of the different penicillins from that of other manufacturers it follows that up to the present published results have not been strictly comparable. However, that is now obviated by the

general use of pure crystalline penicillin G in the treatment of syphilis.

Tyrothrycin.—This is a mixture of gramicidin and tyrocidin. It is too toxic for systemic use but gives great promise as a topical application in the pyodermas especially in the form of wet dressings.

Streptomycin.—This is one of the newest of the antibiotics and has not been used to any extent in dermatology. There is hope that it may prove to be useful in tuberculosis of the skin. It is a specific for granuloma inguinale.

Quinolor.—This drug is a member of the oxyquinoline series which have been used widely in Europe for their chemotherapeutic effects. The effect in high concentration is due to the tanning properties of these drugs, while in lower concentrations they exert their effects by the inhibition of some enzyme of the organism most probably some of the oxidative-reduction enzymes. Compound quinolor ointment (Squibb) is particularly useful in staphylococcal infections such as sycosis vulgaris. The full strength ointment often irritates the skin, but used in a strength of 25% once daily this does not occur and seems to be just as efficacious. The quinones are a useful addition to our list of chemotherapeutic agents for purely external application.

Podophyllin.—Culp, Magdid and Kaplan[1] are responsible for the discovery that podophyllin prepared from the roots of *Podophyllum peltatum* is a specific for soft warts. A 25% suspension in mineral oil or a 20% solution in 95% alcohol cures about 80% in one application—rarely more than four are required. Following treatment the bases of the warts do not ulcerate and there is no scarring. The drug seems to cause spasm of the small blood vessels leading to necrosis and sloughing in the course of three or four days. In addition there are changes affecting the epidermal cells. King and Sullivan[2] found alterations of nuclear patterns with a break-up of chromatin masses and the production of pyknotic fragments. The cells showed distorted mitotic figures, spongy swelling, shrinkage from cell membrane, hydrops and tinctorial changes. These changes are transitory and normal epidermis is re-established in four to six days. The drug has not proved effective for verrucæ vulgaris or plantares probably because of the heavier protective layer of keratin. The suspension has also cured some cases of granuloma inguinale, and is at least a valuable adjunct to the systemic use of antimony compounds in that disease.

Nitrogen mustards.—These are water soluble hydrochloric salts of tris—(chlorethyl) amine or methyl—tris (B chlorethyl) amine (bichlorethylamines or halogen alkylamines) apparently able to produce the same clinical effects on Hodgkin's disease, lymphosarcoma, mycosis fungoides or chronic lymphatic leukæmia as radiation therapy. They are effective in cases which have become radio resistant and may even restore radio sensitivity, but are not curative nor do they supplant x-ray; they are merely complementary. The toxic effect is an extension of their therapeutic effect and consists in a rapid fall of the white blood count without mucosal or other signs except fever.[3]

The dose of nitrogen mustard is 0.1 mgm. per kilogram of body weight. About four injections are given daily. Each milligram of the white crystalline powder supplied in ampoules is dissolved in 1 c.c. of normal saline and given intravenously within 5 minutes of making up the solution.

Fatty acids in fungus infections of the skin.—Peck, Rosenfeld, Leifer and Bierman[4] demonstrated that propionic, undecylenic, butyric, lactic, ascorbic and caprylic acids were excellent anti-fungus agents sometimes in very high dilutions. Believing that sweat might be protective against infection they studied the fungicidal power of sweat and its individual components. Many laboratory and clinical studies have confirmed their findings and the present position may be summarized as follows: (1) undecylenic, propionic and caprylic acids are the most effective of the fatty acids as fungicides. (2) Although they do not cure superficial infections more often nor more rapidly than some of the older remedies, they are the least irritating and sensitizing of all remedies and are therefore particularly useful as a prophylactic. The pH of the preparation should be below 6.5. Twenty per cent zinc undecylenate and 5% undecylenic acid in an ointment base or 10% sodium caprylate in an ointment base have been found satisfactory. Undecylenic acid powder used on the feet and between the toes daily is an excellent prophylactic which may be used safely over long periods of time.

Weidman tested out a variety of medicaments in the treatment of fungus infections of

the feet among 117 penitentiary inmates and found that boric acid powder compared favourably with the other remedies tested. Apparently it is important to lower the pH of the surface of the skin below 6.5 and anything that will do that will probably prove effective. It is interesting to note that propionic acid has been used for years in the baking industry to prevent the growth of mould on flour.

Synthetic antihistamines.—The success attending the use in Europe of antergan (dimethylaminoethylbenzylaniline) in controlling the itching produced in the skin by histamine led to the introduction in America of three chemically related substances, benadryl (Parke Davis & Co.), pyribenzamine (Ciba) and thenylene (Abbott). Their effect apparently depends not on a chemical neutralization of histamine but on competitive inhibition. An excess of antihistamine compounds blocks histamine so that it cannot act. They have been used extensively and many reports are now available. They do not always relieve.

O'Leary and Farber[5] report the effect of benadryl therapy in patients with urticaria. Of 15 patients with acute urticaria 9 were completely relieved, 5 improved and 1 not benefited. Of 35 with chronic urticaria 25 were completely relieved, 7 improved and 3 not benefited. The dosage was 50 or 100 mgm. given orally two to five times daily. Baer and Sulzberger[6] report on the use of pyribenzamine. Half of their patients with urticaria were completely relieved. Fair to excellent relief of itching was afforded to about one-third of patients with various itching dermatoses. Thenylene is new but the preliminary reports are very promising.

There are no serious side effects except the rare development of agranulocytosis. Drowsiness, dizziness and dryness of the mouth commonly occur. Although urticaria is relieved the cause is not removed and this form of therapy may have to be continued indefinitely to prevent recurrence. In these circumstances a careful periodic check-up should be made for agranulocytosis and other possible side effects.

Vitamin D2 in the treatment of lupus vulgaris.—This is revolutionary and has largely brought to an end the long tedious treatment by Finsen light and the strict regimen associated with it, such as the Gerson-Hermannsdorfer diet.

The treatment was introduced independently by Charpy[7] in France and by Dowling and Prosser Thomas[8] in England. It consists in the daily administration of large doses of vitamin D2. Dowling uses calciferol in maximum dosage of 150,000 I.U. daily, reducing gradually to 50,000 units daily. Serum calcium estimations should be made monthly after the second month of treatment and the drug discontinued temporarily if the serum calcium level reaches 12 mgm. or more. There is danger that calcium and phosphorus may be mobilized and produce metastatic calcification of soft tissues particularly of the renal tubules, arterioles and the media of larger blood vessels.

The results are often dramatic. In the first few days the inflammation and œdema subside and the lupomas resolve in from a few weeks to a few months. Those that persist after 4 to 6 months may be dealt with by electrodesiccation. The treatment should be continued for 6 months after apparent cure. Tuberculosis verrucosa cutis, tuberculous ulcer, tuberculous gummas, tuberculous adenopathy and papulo-necrotic tuberculids have all responded to this treatment. It is ineffective in lupus erythematosus, but has been useful to some extent in Bazin's disease, psoriasis and lichen planus.

SCABIES AND LICE INFESTATION

During the first world war the life history of the louse (*Ped. humanus*) was studied by Nuttall of Cambridge University and his findings helped very much in the solution of the louse problem of that era. That problem was simplified in the recent war by the use of D.D.T. powder (dichlorodiphenyltrichlorethane).

This time scabies was an important medical problem. Vast numbers of civilians became infested as well as members of the armed forces. The R.A.M.C., the Medical Research Council and the Ministry of Health co-operated in a planned study under the direction of Mellanby[9] the results of which have been published in book form, and should be read in the original by every physician. It contains a wealth of material about the life history, habits, public health and other aspects of the acarus scabiei. Interestingly an "incubation period" for scabies was demonstrated. A number of healthy volunteer subjects had placed on their bodies several impregnated female sarcoptes. These were watched and the sites of the burrows noted, but not until thirty days had elapsed did any clinical or subjective evidence of

scabies appear. Then the burrows became inflamed and intensely pruritic. Apparently this period is required for sensitization to develop. The subjects were then cured of their scabies and at later dates again subjected to the experiment. This time the inflammation and itchiness at the sites of the burrows occurred in a few hours showing that the sensitization persists. As scabicides a 25% emulsion of benzyl benzoate (the active principle of balsam of Peru) and Danish ointment are equally efficient.

BAL (2, 3-DIMERCAPTOPROPANOL)

This is one of the important medical discoveries of the war. It was developed by Peters, Stocken and Thomson in Prof. Peters' laboratory at Oxford University in a planned effort to find an antidote for Lewisite, an arsenic containing blistering gas which it was thought the enemy might use if a suitable opportunity presented. It was assigned the code name BAL (for British anti-lewisite).

The toxicity of arsenic (and some other heavy metals) is due to their ability to combine with the SH groups of cell proteins of the pyruvate oxidase system. Dithiol compounds appear to form more stable compounds with arsenic (and also with gold and mercury) than do the thiols of cell proteins, and when present the arsenic unites with them and not with the cell protein thiols. Furthermore the dithiols appear to disassociate arsenic already linked with cell thiols and thus reverse the toxic action of that drug. BAL is the detoxifying dithiol compound devised by these workers, and we now have a really successful antidote for heavy metal poisoning. It produces dramatic results in patients with arsenical dermatitis, arsenical agranulocytosis and hæmorrhagic encephalitis. It is effective for the side effect of gold therapy and is life-saving in mercurial poisoning. For intramuscular injections the solution currently in use is 10% BAL, and 20% benzyl benzoate in peanut oil, and the recommended dosage is 2 c.c. six times daily for two days, four times daily on the third day, and two injections daily thereafter until recovery is complete. The known side effects are nausea, vomiting, sweating, tingling and burning sensations, headache and muscular pains, lachrymation, salivation and elevation of blood pressure.

When BAL was first made available to the armed forces a patient was given in error 2 c.c. of pure undiluted BAL. Fifteen minutes later he developed a burning sensation in the skin of the hands and face with profuse perspiration, nausea and vomiting and slight abdominal pain. This continued for about twenty-four hours and then subsided, and without any further treatment he made a complete recovery from a severe arsenical dermatitis of the exfoliating type. The blood and urine were examined daily and remained normal throughout. Prof. Peters is aware of this happening and believes it is the only example on record of gross overdosage in a human being. Failure of BAL in some cases of heavy metal poisoning has been attributed to underdosage. There have been no recorded deaths from overdosage.

In conclusion I must mention a few other advances such as the increasing use of low voltage x-ray therapy for superficial lesions and contact therapy for cancer of the skin. After all it does not seem rational to apply high voltage rays which may affect tissue or organs inches below the surface when the lesion to be treated it only a few millimetres in depth. Many new vehicles have been introduced through our rapidly increasing knowledge of tweens, waxes, polymers and resins. Scores of new water miscible bases are now available and one can prescribe for the patient a much more satisfactory lotion ointment or cream. Our knowledge of vitamins and hormones is increasing constantly and all in all the dermatologist is in a very much better position today therapeutically than he was ten years ago. With so many brilliant young men entering the specialty of dermatology and devoting time to research we can look forward to the future with confidence. The next decade may well prove to be the golden age of dermatological medicine.

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RÉSUMÉ

La dermatologie s'est plus enrichie dans le domaine thérapeutique que dans celui de la recherche étiologique ou pathogénique. Parmi les acquisitions thérapeutiques, signalons les *sulfamidés* qu'il faudra réserver à certaines indications bien précises car ils sensiblisent l'organisme et perdent de leur efficacité lorsqu'on doit les utiliser ultérieurement contre une maladie grave. La *pénicilline* sensibilise également l'organisme. Son action dans la syphilis est encore douteuse et on doit la donner concurrement avec d'autres agents antiluétiques. La *tyrothricine* est encore à l'essai. La *streptomycine* sera peut-être utile dans la tuberculose cutanée; elle agit bien contre le granulôme inguinal. Le *quinolor* est un bon topique antistaphylococcique. La *podophylline* semble être le spécifique contre les verrues molles. Les *moutardes à base de nitrogène* sont assez toxiques et seraient un adjuvant dans la maladie de Hodgkin. Les *acides gras* sont de bons fongicides. Les *antihistaminiques* guérissent momentanément certaines urticaires. La *vitamine Dz* a donné de bons résultats dans le lupus vulgaire. Le *DDT* et le *benzoate de benzyl* ont maintenant raison de la gale et des poux. Le *BAL* est un produit qui jugule rapidement la dermatite arsénicale et protège contre l'intoxication par les métaux lourds. Plusieurs acquisitions de moindre importance complètent la liste des nouveaux agents thérapeutiques en dermatologie.

JEAN SAUCIER

THE DIABETIC MATERNITY PATIENT AND HER BABY*

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A. Before the Discovery of Insulin

STERILITY.—Prior to the discovery of insulin the vast majority of diabetic women were sterile. The sterility was possibly due to several causes, among which an endocrine disturbance is likely the most common. The glands of internal secretion in the pancreas are doubtless closely associated with several of the other glands of internal secretion, particularly the anterior pituitary body. In 1882 J. Matthews Duncan[1] wrote one of the first papers on diabetes and pregnancy. Duncan said "The rarity of pregnancy complicating diabetes is attested not only by its having no historical place in literature, but by the actual experience of accoucheurs and of hospitals. We are constantly seeing nephritic and febrile and other complications, but this complication very rarely." In 1909 Prof. Whitridge Williams[2] collected a total of 65 cases of pregnancy associated with diabetes from all the available literature. Compared with this we find that Prof. N. J. Eastman[3] recently reported a total of 65 cases of pregnant diabetics admitted to the Johns Hopkins Hospital in a period of 10 years, 1935 to 1945.

Pregnancy.—When a diabetic mother did become pregnant in the preinsulin era approximately 25% of the mothers died and about 50% of the babies were lost. In the abovementioned 65 cases reported by Williams, 27% of the mothers were lost. Most of the mothers died with the characteristic picture of acidosis and coma shortly after delivery. Similar results have been reported from other countries. This all goes to prove how very hazardous pregnancy was to the diabetic patient, and also how infrequently the diabetic patient became pregnant. There is doubtless a very close relationship between the sex glands and the pancreatic glands. The resulting pathological disturbances are possibly due to two sets of disturbances (*a*) severe metabolic changes, (*b*) marked endocrine changes. When the disease is left uncontrolled it causes such a marked disturbance in the reproductive mechanism that successful child-bearing becomes almost impossible. Pregnancy seems to aggravate the diabetes and if the disease is not controlled it often proves fatal.

B. After the Discovery of Insulin

Incidence.—Prof. Eastman[4] reporting from the Johns Hopkins Hospital for a period of 10 years gave an incidence of diabetes complicating pregnancy as 1 in 282. This was the incidence for 18,225 deliveries over a 10-year period. According to Prof. Joslin's adaptation of the statistics of the National Health Survey covering 2,500,000 people he showed an incidence as follows: between the ages of 15 and 24 the frequency of diabetes is 1:1,700; between 25 and 34, 1:900; between 35 and 44, 1:300; between 45 and 54, 1:125; between 55 and 64, 1:50 and in women 65 and over 1:45. These figures go to prove the relative infrequency of diabetes in the younger women of the child-bearing age.

Following the discovery of insulin in 1922, the outlook for the diabetic maternity patient and her baby was greatly improved. The improved outlook for the mother was greater than that for the unborn baby. The diabetic patient when properly controlled with insulin

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and diet was no longer to remain non-fertile, but became pregnant almost as readily as the non-diabetic. She also was now able to go through her pregnancy with fewer complications. There are two effects which we have to study (*a*) effect of the pregnancy on diabetes, (*b*) the effect of diabetes on the pregnancy.

Effect of pregnancy on the diabetes.—(1) Changes in sugar tolerance. (*a*) Sugar tolerance is often diminished, due probably to increased activity of the anterior pituitary gland. (*b*) Sugar tolerance is sometimes increased, due to activity of fetal pancreas or to other factors. (*c*) Vomiting, with loss of unknown amounts of carbohydrate food may simulate raised sugar tolerance, may provoke acidosis, and in any event confuses the dietary picture. (*d*) During labour the muscular exertion entailed may so deplete the glycogen reserve that sharp alterations in the carbohydrate and insulin requirement ensue. (*e*) A gain in sugar tolerance often occurs after delivery and hypoglycæmia in the puerperium is common.

2. Increased tendency to ketosis. (*a*) The diminished carbon dioxide combining power of the blood in pregnancy makes gravidæ less resistant to acidosis. (*b*) The elevated basal metabolic rate in pregnancy increases the tendency towards acidosis.

The effects of diabetes on pregnancy.—(*a*) The effects of diabetes on pregnancy depend considerably upon how well controlled the diabetes is. However, even with good pre-natal management there is still the possibility that the disease will have detrimental effects upon the mother, or baby or both. The better the disease is controlled the less chance there is for accidents to happen to either mother or baby. The possible effects of the disease on the pregnancy may be grouped as follows: (1) The incidence of spontaneous abortion and premature birth is slightly increased. (2) The frequency of pregnancy toxæmia is increased. (3) Fetal death *in utero* before full term is more common. (4) The incidence of abnormally large babies is increased. This increases the hazards during labour, and makes Cæsarean section more common. (5) Polyhydramnios is more common. (6) Congenital malformations are more common. (7) During pregnancy the possibility of hypoglycæmia and anoxia is increased.

Abortion and premature labour.—This occurs in about 20% of the controlled cases, which is about double that of the normal in the non-diabetic. It is believed that acidosis predisposes to abortion. The disturbed metabolism in general may be a factor also. Some claim that the female egg to start with is not normal, and the resulting embryo starts off with unhealthy genes and produces an abnormal embryo. Death of such an embryo *in utero* may occur and finally the dead embryo is aborted.

Toxæmia of pregnancy.—The average incidence of pregnancy toxæmia in the non-diabetic is about 7%. The average incidence for the diabetic patients is 33%. The exact cause of this increase is unknown. It is no doubt closely related to the disturbed maternal metabolism. According to George Van S. Smith and O. Watkins Smith[5] the toxæmia is due to a disturbed endocrine balance in the mother. They claim that there is a definite imbalance between the chorionic gonadotropic hormone and the œstrogen and progesterone. The chorionic gonadotropic hormone is high while the œstrogen and progesterone are low in the toxæmias of pregnancy. They claim that this alteration of the hormone balance precedes the clinical manifestations of the toxæmia. These workers have tried administering œstrogen and progesterone to the toxæmia cases and have reported gratifying results. Following this work Priscilla White[6] in Boston has carried out considerable clinical investigation along the same line and has claimed most excellent results. This author has done a great deal of very good experimental clinical work with diabetic pregnant patients. Some of her results are startling indeed, and we must give her great praise and credit for calling our attention to this new therapy. In one group of 20 diabetic pregnant patients whose serum gonadotropin levels were considered normal no toxæmias developed, while in a second group of 11 other similar diabetic patients whose serum gonadotropin levels were increased and who received no hormone therapy, 8 of these showed toxic symptoms. The other 3 delivered prematurely. She also found that the infant mortality rate in diabetic mothers whose serum gonadotropin levels were normal was 5%, while the baby mortality rate from the mothers whose gonadotropin levels were rising, was as high as 55%. When she treated mothers with adequate hor-

mones such as 40 to 120 mgm. of stilbœstrol daily, along with 10 to 40 mgm. of pregnolinine daily the fetal mortality rate dropped to 10%.

White also claims that the very large babies are due to the imbalance of the hormones. She claims that with adequate hormone therapy the size of the baby may be controlled without much difficulty. Substantiation of this from other sources is probably necessary, but at present we know of no better method that would be worth trying. Cæsarean section of course at the end of 8 months will bring the baby into the world before it is too large, but it is a premature baby. This at present is being commonly done in order to save the baby, particularly in the severe and moderately severe diabetics. In 1943 Priscilla White[7] reported her results from 125 diabetic pregnancies treated and untreated as follows, a gross infant loss of 13.6%. This is of course an exceptionally good result. David Hurwitz claims that pregnancy and fetal accidents may occur in patients with a normal hormone balance. Personally I feel that some of the conflicting evidence regarding the relationship of hormone balance to pathological conditions in the mother and baby is possibly due to the following factors. (*a*) The present difficulty in making hormone assays which are 100% dependable. (*b*) The methods used and the interpretation of the results may vary somewhat. (*c*) The fetal hormone levels and influences are unknown.

However in the present light of our knowledge of this very fascinating development we must have an open mind and accept Priscilla White's wonderful achievements and reports with congratulations. The unfortunate part of this hormone therapy is of course its expensiveness. The feeling at present is that the average cost of the hormones per patient is almost prohibitive. We hope that in the near future the cost of the hormone therapy will be much decreased.

MANAGEMENT OF THE DIABETIC MATERNITY PATIENT

When possible it is better for the obstetrician and the internist to share the responsibilty of the treatment of this patient. The average patient should be admitted to the hospital for a few days' investigation so that proper treatment may be started. After this the patient should be admitted to the hospital at least every 2 months for a similar check-up, and the treatment altered as found necessary. Throughout pregnancy the patient should visit the physicians every 2 weeks. Finally the patient should be admitted to the hospital 3 weeks before full term for a thorough check-up so that we may then decide whether or not the patient should now be delivered or allowed to proceed closer to term.

Some degree of nausea or vomiting during the first three months of pregnancy may prevent the patient from eating the diet which she is allowed. Usually however the nausea or vomiting is not severe enough to interfere seriously with the patient's welfare. In case there is considerable nausea and vomiting the patient should be put in hospital where treatment can be properly carried out. Hourly feeding of such patients with ordinary insulin given every 3 hours is helpful. Intravenous glucose with added insulin may be required for some patients.

During the second third of pregnancy the nausea and vomiting have usually subsided, and the patient's diet is more easily regulated. The patient should visit her physician at least every two weeks and her diet and insulin regulated according to her condition.

The diet for the average diabetic pregnant patient is made up somewhat as follows. There should be about 30 to 40 calories per kilogram of body weight. The carbohydrate allowance is between 150 and 250 grams. The protein is 2 grams per kilogram body weight. The fat should then be added, sufficient to make up her caloric allowance. Protamine zinc insulin is used when more than 40 units of plain insulin is required.

When the patient is passing through her last 3 months of pregnancy we have to keep careful check on her diabetic control. The patient is sent to hospital about 3 weeks before full term or 4 weeks before if thought necessary. At this time a careful check on her blood sugar is made besides doing a blood count, blood grouping and the rh factor. The relative size of the baby is estimated. An x-ray of the pelvis is done because if the baby is a little larger than usual and the pelvis a little on the small side, one should try and make certain of the pelvic measurements. The x-ray should be used also

for detecting fetal deformities. If some gross fetal deformity is detected one would likely hesitate to do a Cæsarean section under such circumstances.

The final decision must now be made regarding the type of delivery for the patient. There are three possibilities ahead of the patient for delivery, depending upon the circumstances present in each case. In other words the patient must be individualized for choosing the method of delivery. Briefly, these patients may be divided into three categories:

(*a*) The mild diabetics who may be permitted to go to term and go into labour spontaneously.

(*b*) The moderate types who constitute the majority of our patients. These patients may be handled as follows: (1) Cæsarean section is done about 3 weeks before full term. This is particularly so if there is present any other indication for section. (2) Rupture of the membranes if the circumstances permit, when the patient is about a week or so before term. For this method the head must be deeply engaged, the cervix shortened to 1 cm. and the cervical canal will admit one finger easily. (3) Allowing the patient to go to full term when the disease is well controlled, and adequate use of the hormones, has been possible. Of these three methods of delivery for the moderately severe diabetic, I personally favour Cæsarean section, done about 3 weeks before full term.

(*c*) The more severe diabetic patient is best delivered as follows: (1) Hospital one month before term. (2) Special preparation and control of the disease 4 weeks previously. (3) Cæsarean section is the method of choice after 1 week's good control in the hospital before operation.

The Anæsthetic

The anæsthetics used for delivery will vary somewhat with the individual case. The average patient who is to be delivered about 3 weeks before term is best done by means of a spinal anæsthetic. I personally prefer this and at the same time we avoid giving the patient any preoperative medication, but she is allowed just sufficient cyclopropane to keep her subconscious. Under these circumstances the operation is easily carried out and the baby's condition at birth is excellent. These babies are premature and do not stand much premedication, which we ordinarily use for the mother, neither do they stand any of the inhalation anæsthetics very well. Undoubtedly local infiltration anæsthesia would give equally as good results.

Management of the Mother Post-partum

In the puerperium there occur several changes in the mother's metabolic mechanisms and in her endocrine system which go to alter her blood sugar. The fetal pancreas is withdrawn, and some amount of blood glucose is transformed into mammary lactose. The most marked changes occur in the first week post-partum. Hence daily blood sugar estimations should be made during the first week post-partum. Three or four injections of insulin daily with food to cover is probably better than single larger doses. Ordinary insulin is used for this purpose. Under good circumstances when the diabetes is only of a mild or moderate form the baby may be allowed to nurse the mother. However, in most cases it is better to wean the baby and put it on the bottle from the start. During the process of weaning one keeps a careful watch on the blood sugar because at times there is a marked alteration in the blood sugar during the weaning. This is doubtless due to an endocrine change.

Management of the Baby

The chief problems arising in the baby born of a diabetic mother are: (*a*) prematurity; (*b*) hypoglycæmia; (*c*) anoxia. The baby should be placed in the heated crib and an oxygen supply should be on hand. Try and keep the baby warm and give it oxygen if necessary. The temperature of the crib should be between 80 and 85°. These babies are given small quantities of glucose solution by mouth every 3 hours for the first 24 hours. Following this the babies are started off with their regular feedings.

Future Pregnancies

If the husband of a diabetic wife is non-diabetic and there is no diabetic history in his family, there is very little chance of the baby being a diabetic. The child may be a so-called carrier. Therefore, one decides that the advice given to the average diabetic patient who has a non-diabetic husband is that she may have more children should she so desire, so long as her disease can be readily controlled. If, however, the disease is more severe and hard to

control or if the patient is negligent about her management then of course further pregnancies may seriously endanger the patient's life.

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4 Hayman Court.

RÉSUMÉ

Avant l'ère de l'insuline les femmes demeuraient habituellement stériles, ou si elles devenaient enceintes mouraient pour la plupart; l'enfant mourait également le plus souvent. Depuis l'avènement de l'insuline, les choses ont changé et les femmes traitées deviennent aussi facilement enceintes que les autres. Cependant, au cours de la grossesse on note des changements dans la tolérance pour le sucre et une tendance plus marquée à l'acidose. Par ailleurs, le diabète augmente les chances d'avortement, de toxémie, de morti-natalité et d'hypertrophie du fœtus. Une femme enceinte qui est diabétique doit être suivie attentivement et à intervalles réguliers par son accoucheur et par un médecin spécialisé. Quelques jours d'observation ou de traitement à l'hôpital sont parfois nécessaires. L'admission en vue de l'accouchement se fera au moins 3 semaines d'avance. Le mode d'accouchement variera selon les cas. La rachianesthésie est le procédé de choix. Après l'accouchement, la surveillance sera plus particulièrement soignée et des glycémies fréquentes guideront le médecin. Le bébé sera surveillé attentivement parce qu'il sera le plus souvent un prématuré à tendances hypoglycémiques et anoxémiques. JEAN SAUCIER

XANTHOMATOSES*

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DISTURBANCES of lipid metabolism usually are characterized by skin lesions and systemic manifestations which often are of a serious nature. It is difficult to make a satisfactory working classification of the lipid disturbances in view of our present inadequate knowledge of lipid metabolism. Multiple classifications have been given in the past.[1 to 6] The grouping in this paper is a simplified one and deals essentially with lipid disturbances having cutaneous manifestations. The term "xanthoma", which means "yellow tumour", is frequently a misnomer because many of these patients do not have tumours; nonetheless, common usage warrants continued use of the term.

The most common type of cutaneous xanthoma is that known as *xanthoma palpebrarum* (xanthelasma). It occurs as small, yellow to orange or orange-red coloured papules and nodules or plaques involving the eyelids (Fig. 1a). The majority of the lesions are located toward the inner canthi, but, occasionally, the lesions are numerous and thick enough to interfere with vision. About 50% of the patients who have xanthoma palpebrarum do not display any evidence of hyperlipæmia or associated systemic disease, although the lesions of the eyelids may occur in association with other forms of xanthoma or may be the first manifestation of severe hyperlipæmia associated with cardiovascular or hepatic disease.

Xanthoma tuberosum, the second most common form of xanthomatous disease, occurs at any age and is characterized by predominance of lesions on the extensor surfaces, especially the elbows, knees and tendon sheaths (Fig. 1b).[7] The lesions may be solitary or multiple, vary in size from a few millimetres to several centimetres or more and display a variety of colours from yellow to reddish brown. Hyperlipæmia with increase especially of cholesterol is found in association with xanthoma tuberosum. In almost half of these cases, there is evidence of cardiovascular disease, usually of coronary sclerosis with angina pectoris or of occlusive vascular disease of the extremities with intermittent claudication which appears often in the form of arteriosclerosis obliterans. In the *juvenile type of xanthoma tuberosum*, the mitral valve of the heart may be involved but vascular disease of the extremities is rare. A history of familial incidence of hyperlipæmic states is usually elicited in patients who have the juvenile form of xanthoma tuberosum and a similar history is likewise common in the adult type of the disease.

Müller has emphasized that hereditary heart disease due to xanthomatosis is fairly common, that the syndrome of cutaneous xanthomatosis, hypercholesterræmia and angina pectoris presents itself as a well-defined disease entity in the first, second, third and fourth generations and that it is a dominant hereditary disease. Polano and others have confirmed these findings. In studying a given family, one may find all combinations of the disease: thus, one member may have

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Fig. 1a.—Xanthoma palpebrarum (xanthelasma). **Fig. 1b.**—Xanthoma tuberosum (xanthic tumour of tendon sheath). **Fig. 2a.**—Xanthoma tuberosum. Note variance in size of lesions occurring on elbow. **Fig. 2b.**—Xanthoma disseminatum of the axilla.

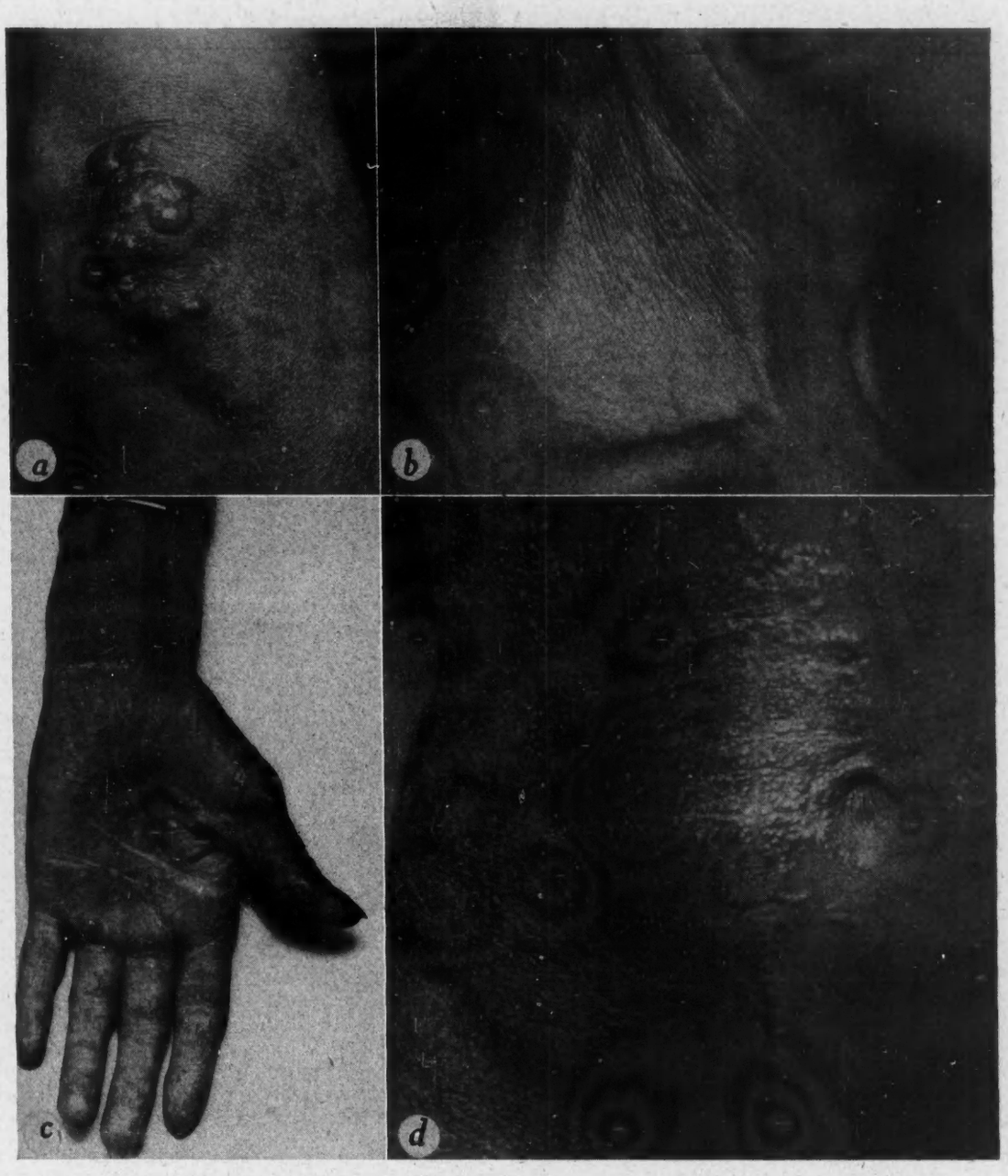

Fig. 3a.—Xanthoma tuberosum associated with xanthomatous biliary cirrhosis. **Fig. 3b.**—Same case. Large plaque of diffuse xanthomatous infiltration. **Fig. 3c.**—Xanthomatous biliary cirrhosis (Bürger-Grütz type) showing involvement of creases of palm and fingers. **Fig. 3d.**—Same case as Fig. 3c, showing diffuse xanthomatous plaques and involvement of laparotomy scar.

hyperlipæmia only, another xanthelasma and a third the complete picture of cutaneous xanthoma, hyperlipæmia and cardiovascular disease. It would also appear that angina pectoris and coronary disease develop at an earlier age in this group of patients than is true for angina pectoris in general, and cutaneous xanthoma may precede by several years the clinical manifestations of cardiovascular disease.

We observed a woman, twenty-eight years old, who had had extensive cutaneous lesions of xanthoma tuberosum for a period of six years (Fig. 2a; contrast with xanthoma disseminatum Fig. 2b). Her blood plasma cholesterol was 667 mgm. per 100 c.c. of plasma (normal 200 mgm.) and her total lipids were 1,723 mgm. per 100 c.c. of plasma (normal 550 mgm.). The first general examination which she underwent included electrocardiography, special cardiovascular studies and roentgenograms of the legs for evidence of occlusive arterial disease, all of which were normal. When examined thirteen months later, no evidence of cardiovascular disease could be elicited. Nevertheless, she died at home a year later of angina pectoris, the symptoms having developed only a short time before death.

Xanthoma tuberosum in association with myxœdema has been reported by Sweitzer and Winer.[8] An increase of blood plasma cholesterol is of diagnostic value in cases of myxœdema with or without evidence of cutaneous xanthoma.

Xanthoma tuberosum is associated with hepatic disease in about 15% of the cases.[9, 10] It may occur in association with primary disease of the liver, so-called xanthomatous biliary cirrhosis (Figs. 3a and 3b), or in association with hepatic disease that is secondary to the obstruction of the common bile duct, especially as the result of postoperative stricture. In cases in which hepatic disease is primary, the prognosis is generally unfavourable while it is more favourable in the secondary types. Hepatic disease and hyperlipæmia frequently precede the development of cutaneous lesions but not necessarily so. A special type of hepatic disease with hyperlipæmia was described by Bürger and Grütz as hepatosplenomegaly with cutaneous and mucosal lipoidosis in which there is a marked and disproportionate increase of phosphatides rather than of cholesterol as occurs in other forms of hepatic xanthomatosis. Bürger and Grütz reported two cases, one without jaundice and one with jaundice. One of the characteristics of xanthoma in relation to hepatic disease is the tendency for the folds and creases of the palms and soles to be outlined by yellowish xanthomatous deposits (Fig. 3c). Large superficial xanthomatous plaques may occur on the trunk and also in laparotomy scars (Fig. 3d).

Xanthoma diabeticorum does not differ materially in appearance or distribution from xanthoma tuberosum except that the lesions are likely to be more numerous and smaller in size. Thannhauser expressed the opinion that xanthoma diabeticorum is a secondary rather than an essential form of xanthomatosis. As in hepatic xanthomatosis, the palms and soles are almost always involved in the process. Xanthoma diabeticorum is usually seen in patients who have a severe degree of diabetes which has been poorly controlled. The diagnosis of xanthoma diabeticorum is readily confirmed by the prompt involution of the cutaneous lesions that follows control of the diabetes by proper treatment.

Xanthoma disseminatum is a relatively rare condition. It differs strikingly from xanthoma tuberosum in that xanthomatous lesions occur on flexural surfaces rather than on extensor surfaces and predominate in the axillæ (Fig. 2b), groin and mucous membranes. There may be extensive involvement of the larynx and pharynx, necessitating tracheotomy. The blood cholesterol and total lipids are normal or even subnormal. Xanthelasma is also usually present. In addition, there may be a history of diabetes insipidus and cases have been reported in association with Hand-Schüller-Christian disease with evidence of typical bony changes of that disease. Evidence of cardiovascular disease is lacking, although there may be hepatic involvement in the terminal phases. It must be kept in mind that in children there may be exceptions to the rule and, occasionally, a combination of tuberose and disseminate forms of xanthoma appear in association with combinations of systemic involvement.

The *histopathologic changes* in the skin are similar in all the types of cutaneous xanthoma mentioned so far. These changes consist of deposition of lipids, especially cholesterol, in so-called foam or xanthoma cells (Fig. 4). Touton giant cells predominate in lesions of xanthoma tuberosum and xanthoma disseminatum but are rarely found in lesions of xanthelasma. Cholesterol clefts and collections of cholesterol crystals may occur, especially in lesions of xanthoma tuberosum. So-called xanthic tumours of the tendon sheaths differ only in the predominance of fibrous tissue.[7]

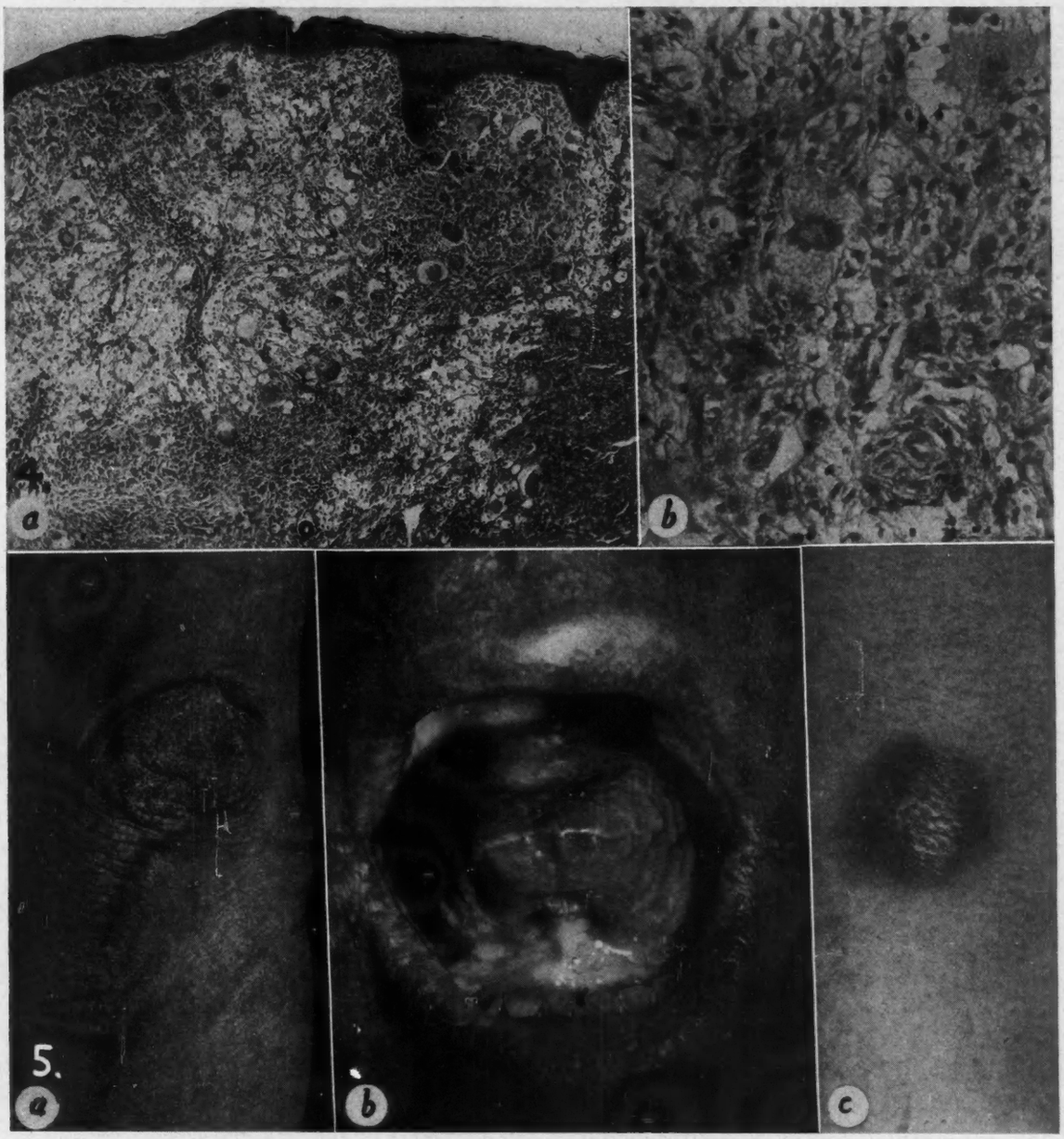

Fig. 4a.—Xanthoma disseminatum. The histologic changes are similar to those of xanthoma tuberosum and xanthelasma. Note vacuolated foam or xanthoma cells, also typical Touton giant cells with circular arrangement of the nuclei (x 65). **Fig. 4b.**—Showing details of cells (x 150). **Fig. 5a.**—Lipoid proteinosis. Lesions on elbow which lack a xanthomatous hue and resemble those of a plaque of localized neurodermatitis with lichenification. **Fig. 5b.**—Same case showing involvement of lips and sclerosis and binding down of the tongue. **Fig. 5c.**—Small plaque of necrobiosis lipoidica diabeticorum from leg with yellowish centre and reddish purple periphery.

There is a rare form of xanthoma known as *nevoxantho-endothelioma* occurring in infancy and consisting usually of a few xanthomatous papules or nodules which occur in a group but at times occur as multiple and extensive lesions. In this condition, there is no evidence of hyperlipæmia or of systemic involvement and the lesions involute spontaneously in a few months; hence, this type of the disease is to be distinguished from juvenile xanthoma, which usually offers a serious prognosis. Nevoxantho-endothelioma can also be distinguished from juvenile xanthoma on the basis of histopathologic findings, as in nevoxantho-endothelioma there are endothelial giant cells as well as characteristic xanthoma or foam cells, including Touton giant cells.

An uncommon type of cutaneous xanthoma is known as *"lipoid proteinosis"*.[11, 12, 13] The cutaneous lesions are seen on the elbows (Fig. 5a) and knees in the form of lichenified papules and plaques resembling clinically localized neurodermatitis. The lesions do not have a yellowish or xanthomatous hue and do not itch. The pharynx is often involved and there may be a sclerosing of the mucous membranes, pulling the tongue down (Fig. 5b); bith processes result in disturbance of speech and hoarseness. Diabetes has been reported in some cases and there is a definite tendency for the disease to be familial. There is no specific treatment. There seems to be a relative increase of the plasma phosphatides rather than of cholesterol; in this respect the disease resembles the Bürger-Grütz syndrome but hyperlipæmia is not present. The disease has the name "lipoid proteinosis" because of diffuse extracellular deposits of lipids in the tissue without evidence of foam or xanthoma cells but with rather diffuse staining of the collagen fibres with the lipids. There is some question whether this condition should be included under true diseases of lipid metabolism or whether it simply represents a degenerative process.

This latter concept is probably true in *necrobiosis lipoidica diabeticorum*,[14] in which there are multiple yellow to red sclerotic plaques varying in size and occurring chiefly on the extremities (Fig. 5c). There is associated diabetes in 90% of the cases and 80% of the lesions occur in women. Although the diabetes when present is usually of a severe grade, an occasional case is encountered in which there is no evidence of diabetes mellitus. The histopathologic picture of necrobiosis lipoidica diabeticorum shows regions of pseudonecrosis of the connective tissue and regions of extracellular deposits of lipids. There is no response of the lesions to treatment.

There are several diseases of lipid metabolism of rare occurrence, of which *Niemann-Pick disease* is one. This usually occurs in infants but may occur at any age and is characterized by splenohepatomegaly. Although the skin has a distinctive yellowish hue, cutaneous xanthomas are seldom found. In this disease there is a disturbance of the phosphatide metabolism, especially of that of the diaminophosphatides (sphingomyelin). *Gaucher's disease*, which is equally rare, is characterized by enlargement of the spleen and liver, mottling and rarefaction, cortical thickening of the long bones, cuneiform thickening of the conjunctiva and a bronzing of the skin with or without scattered hæmorrhages. Cutaneous xanthomas are not present. The disease is familial and the disorder has to do with disturbance of metabolism of kerasin.

It has been customary in the past to group *Hand-Schüller-Christian disease* with systemic xanthomatosis and there still seems to be justification for this in that cases of Hand-Schüller-Christian disease and disseminate xanthomatosis have been reported occurring in the same individuals. Farber, Mallory and others,[15, 16, 17] however, have called attention to the close relationship between *Letterer-Siwe disease, Hand-Schüller-Christian disease* and *eosinophilic granuloma* of the bone and they have noted that all types of transitions between these three conditions may occur. Furthermore, they believe that foam or xanthoma cells found in these conditions are a secondary degenerative phenomenon rather than a part of the essential pathologic process and that in the early phases of these diseases foam cells containing lipids are not demonstrable in tissue nor is there a hyperlipæmia. Wallgren[18] grouped Letterer-Siwe disease and Hand-Schüller-Christian disease under the term *"systemic reticulo-endothelial granuloma"* and this term might also be used to include eosinophilic granuloma of the skin and bones.

The various forms of cutaneous xanthoma are readily diagnosed because of the distinctive yellowish to saffron-like colour of the lesions.

The distinction as to the type of xanthoma can be made on the basis of the distribution of the lesions and the concomitant blood lipid studies in addition to the evidence of systemic involvement. In *Letterer-Siwe disease,* petechial exanthems and purpuric lesions are frequently encountered. However, we have seen a mild form of this disease in a child in whom the cutaneous lesions clinically resembled those of disseminate xanthomatosis or disseminate ganglioneuroma but in whom the histologic changes in the skin and bone were those of eosinophilic granuloma. No foam or xanthoma cells were present and there was no hyperlipæmia. The cutaneous lesions in *eosinophilic granuloma* of the skin have varied from superficial granulomatous lesions to lesions resembling scrofuloderma and bear no resemblance to xanthoma. The lesions in urticaria pigmentosa may present a yellowish hue but there is definite pruritus and urtication of the lesions can be produced. Cutaneous xanthomas are to be distinguished from multiple cholesteatomas and also from so-called lipoid tophi, which resemble gouty tophi. Distinction from so-called yellowing dermatosis (Weidman), including senile elastosis (fatty degeneration of elastic tissue), pseudoxanthoma elasticum, multiple ganglioneuromas of the skin and Danlos' syndrome, usually can be made by concomitant clinical and histologic findings. Resorption xanthomas represent fatty degenerative changes which are the sequelæ of various granulomas or results from fatty degeneration in neoplasms. It is almost impossible to distinguish clinically and even at times histologically between fibrotic stages of solitary lesions of xanthoma tuberosum and the histiocytic phase of nodular subepidermal fibrosis. In the latter condition, however, there is not any increase of the plasma lipids. Most types of xanthoma may or may not be associated with xanthochromia and carotinæmia.

Our knowledge of the etiology of diseases of lipid metabolism is dependent in part on our knowledge of the synthesis of the various lipids and much remains to be determined in this regard. The multiple concepts of the etiology of xanthoma have been discussed in papers by Thannhauser and Schmidt[19] and by one of us (H.M.). Thannhauser and Magendantz spoke of a primary essential xanthomatosis which includes most types of cutaneous xanthoma, the Hand-Schüller-Christian disease group, Gaucher's disease and Niemann-Pick disease. They then recognized a secondary type of xanthoma due to lipæmia in which the foam cells simply store excess of lipids as, for example, xanthoma diabeticorum and finally localized formation of xanthoma cells in true tumours. In the primary essential xanthomatosis, Thannhauser and Magendantz assumed that xanthomatous lesions, whether cutaneous or systemic, actually were responsible for increase of blood plasma lipids. It is difficult for us to conceive that a few cutaneous lesions in some cases of xanthoma tuberosum with hyperlipæmia but without systemic manifestations can be responsible for the hyperlipæmia. This would be equivalent to explaining an increase of the uric acid of the blood as the result of gouty tophi. There are many other explanations of the cause of xanthoma and of hyperlipæmia that have been offered in the past, none of which have been proved.

TREATMENT

In regard to treatment and prognosis, the lesions of xanthelasma and xanthoma tuberosum may involute partially or even completely after the ingestion of a diet low in fat and, more particularly, one free of animal fat. Reduction of the blood lipids in the liver occurs and it may, therefore, be anticipated that beneficial effects will follow a fat-free diet in regard to cardiovasular complications. Many other types of treatment have been advocated for xanthoma tuberosum but they have failed to prove their worth, except probably the use of small doses of thyroid in connection with a diet free of animal fat. Strangely enough, this diet proved of benefit in one case we had of xanthoma disseminatum in which the blood lipids were normal. The tumours may be surgically excised when they interfere with function. As mentioned previously, xanthoma diabeticorum responds promptly to administration of insulin and proper regulation of the associated diabetes. Roentgen therapy seems to be the treatment of choice in regard to the bone lesions in Hand-Schüller-Christian disease and related diseases. The prognosis in xanthomatosis is dependent on the type of involvement and the extent and severity of the systemic manifestations.

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GIANT BULLOUS EMPHYSEMA

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THE first patient is described because he illustrates the development during 5 years of localized giant emphysematous bullæ in the apex of an otherwise healthy lung. Following removal of this part of the upper lobe the rest of the lung, which had been displaced downwards, promptly expanded to fill the hemithorax. The second patient illustrates multiple bilateral giant emphysematous bullæ and presents a controversial problem in the therapy as they were localized mainly in an upper lobe.

CASE 1

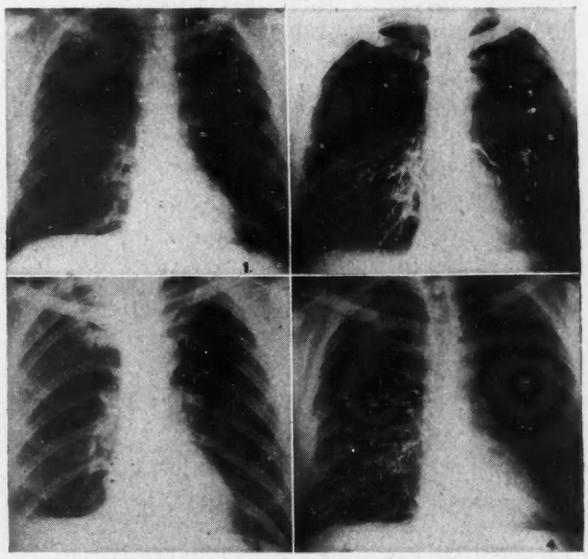
R.A.S., a white male, aged 35. At the time of discharge from the Canadian Army in January, 1946, x-ray examination showed what was thought to be a large air-filled bulla in his right upper lobe. His enlistment film of March 17, 1941, was reviewed and was found to be normal.

In June, 1946, he was admitted to hospital for investigation. As a child he had had measles and mumps. In February, 1941, one month after enlistment, he was in hospital for 7 days with a moderately severe non-productive cough of unknown cause, during which time no x-rays were taken. Aside from a mild attack of enteritis later in 1941 there was no other history of illness. He served in the R.C.A.F. in Canada, England and in North West Europe as a transport driver; the work was often hard and exhausting but he felt well throughout his service. He had an occasional slight cough which was ascribed to cigarette smoking.

Physical examination showed a well developed man in whom nothing abnormal was found except in the right lung. The chest was well developed with a normal shape and expansion was equal on both sides. Respiratory rate and rhythm were normal and abdomino-thoracic in nature. The apex beat was inside the nipple line in the 5th intercostal space. Tactile fremitus was normal, percussion showed normal lower lung borders and normal excursion. From the right apex to the level of the second rib anteriorly the percussion note was tympanitic and in the right axilla there was a comparative dullness. Auscultation was abnormal only over the right apex where the breath sounds were diminished. No adventitious sounds were heard. Laboratory findings Hgb. 90% 13.9 grams, red blood cells 4.6 million, white blood cells 7,000, polymorphonuclears 60%, lymphocytes 40%, sedimentation rate 3 mm. in the first hour. Kahn reaction negative. Acid-fast bacilli were not found in concentrated sputum or in specimens obtained by tracheal lavage.

January 16, 1946, the right hemithorax showed no lung parenchyma from the apex to the level of the 8th thoracic vertebra; some curvilinear streaks crossed this radiolucent zone (Fig. 1). The lung was compressed below this level and there was slight displacement of the heart and mediastinum to the left. The appearance was that of large emphysematous bullæ. The lesion seemed to be displacing rather than destroying the lung. June 7, lipiodol bronchogram showed marked depression of the right upper bronchi and confirmed the opinion that there was a displacing rather than a destructive lesion (Fig. 2).

Artificial pneumothorax was instituted on June 13; 150 and 200 c.c. of air were introduced on successive days. The initial pressures were –9 and –5 cm. of water and the final pressures –7 and –4 cm. June 15, a pneumothorax separated the visceral and parietal layers of the pleura by 1 to 3 inches. Three or 4 bullæ could be seen and a slight increase in the mediastinal displacement to the left was noted. Two days later the pressures were –6 to 0 cm. Under fluoroscopic control a pneumothorax needle was introduced into the large superior lung bulla. Initial pressures were –3 and –2 cm., but a positive pressure developed. This resulted in a marked mediastinal shift to the left and increased collapse of the right lung. A tension pneumothorax apparatus was connected to the pleural space but the mediastinum remained shifted about 1½ inches to the left. The patient had no complaints during the next 5 days except for an irritative, slightly productive cough. He was given 20,000 units of penicillin every 3 hours intramuscularly but his tension pneumothorax remained unchanged.



On June 21, thoracotomy was performed and the pleural cavity was opened and explored. Large cystic

bullæ were found at the apex of the upper lobe. There was so much good lung remaining in the upper lobe that it was decided to remove the cyst-bearing part. This was dissected from the rest of the lung and the pleura oversewn. The rest of the right lobe and the middle and lower lobes were re-expanded and the chest was closed. The postoperative course was uneventful. X-rays were made during convalescence and on discharge.

July 5, postoperative film showed no bullæ (Fig. 3). There was slight thickening of the right pleura. Lateral film of the same date showed the accessory fissure and part of the upper and lower limb of the main fissure. The volume of the right upper lobe was only slightly less than normal. On August 1, the physical findings were normal except for some retraction and restriction of movement of the right upper chest.

The part of the lung which was removed when collapsed measured 10 x 5 x 3.5 cm. There were 3 bullæ with the common base composed of a small amount of lung. The 2 smaller bullæ connected with each other. Microscopic sections through the cyst wall showed that the inner lining was composed of flattened and low cuboidal epithelium. This was resting directly on a base of hyalinized fibrous tissue and in this zone focal chronic inflammatory reaction and anthracotic pigment were seen. A few elastic fibrils were present in this connective tissue especially about the blood vessels. In the surrounding lung the bronchioles showed marked chronic inflammation and many eosinophiles in the bronchiolar walls. There was a normal amount of elastic tissue and the alveoli were of normal size and structure. There was no evidence of emphysema.

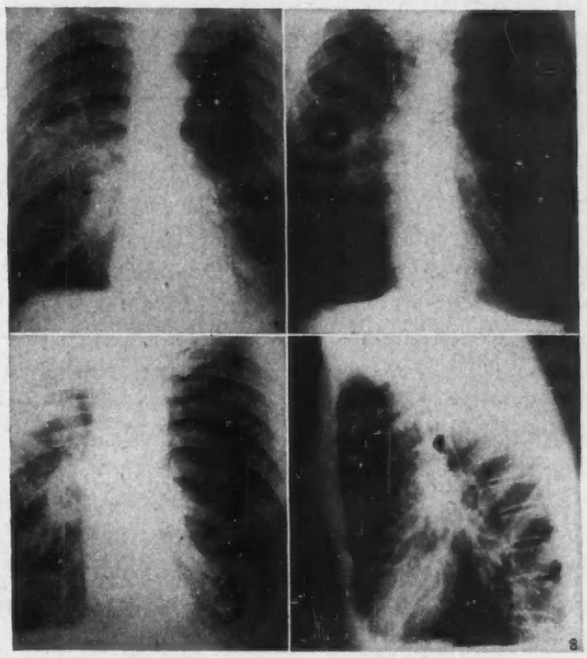
November 28, lipiodol bronchogram, showed that the fine sub-divisions of the bronchi of the anterior and lateral segments of the right middle lobe and the anterior basilar segment of the right upper lobe were closer together than one would expect (Fig. 4). It was therefore believed that the middle lobe had not re-expanded completely. The space occupied by the upper lobe suggested that it had almost completely re-expanded.

CASE 2

W.G.V., a white male, aged 56, was first seen in this hospital early in 1933 when he complained of chronic cough and soreness in the left chest which he had had for 20 years. He had often stayed in bed at home because of "chest cold". He was described then as a pale undernourished man. The movement of his chest was poor and there was hyperresonance over the upper left chest. The movement of the diaphragms was decreased. Breath sounds were diminished over the left upper chest, no adventitious sounds were heard. An x-ray showed what was thought to be a pneumothorax over the upper third of the left lung field with no shift of the mediastinum. Six months later an x-ray looked the same. Because the duration and the cause of the condition were unknown an attempt was made to re-expand the lung. Intrathoracic pressures were –30 and 0 cm.; 500 c.c. of air had been removed when the pressure suddenly altered to –30 and +40 cm.; the patient became profoundly shocked but recovered uneventfully. Fluoroscopy at that time showed a decrease of the air-containing cavity but no mediastinal shift was noted (the sudden alteration from negative to positive pressure was presumed to be due to a ball valve mechanism).

From 1933 onward he did little work of any kind. He complained of shortness of breath on exertion but he said that he could walk about a mile at his own speed. He had also lost 30 pounds in weight in the same period. In 1941, he was admitted to hospital because of an acute respiratory infection. An x-ray showed that the upper half of the left chest was now occupied by an air-containing cavity. There was also a smaller space in the right apex with trabeculation in it which appeared to be due to bullous emphysema (Fig. 5). He recovered from the respiratory infection and was again well except for his decreased exercise tolerance. He was admitted for acute respiratory infections in 1945 and 1946 with severe dyspnœa on each occasion.

In 1946 the radiological appearance was that of large bilateral emphysematous bullæ. On the left side no lung markings were seen from the apex to the level of the 5th rib anteriorly. Below this area numerous opaque strands radiated from the left cardio-phrenic shadow to the parietal pleura, looking like the walls of large thin-walled emphysematous bullæ. A shadow in the left cardio-phrenic angle was thought to be due to atelectatic lung. The appearance of the right side had changed markedly from that seen in 1945 when the upper third of the right lung seemed to consist of large emphysematous bullæ. There was now a collapse of this cystic area with re-expansion of the formerly compressed lung tissue and a pneumonic process superadded. This impression was also borne out by marked mediastinal shift to the right (Fig. 6). The infective process cleared and the cystic area again expanded, however the mediastinal shift persisted, which may have been due to an increasing positive pressure in the giant bullæ on the left side.



The possibility of excision of the large bullæ was considered, but the cystic areas were thought to be too great for successful removal. In early 1947 he was admitted because of an acute attack of severe dyspnœa and died shortly after admission (Figs. 7 and 8). At autopsy the superior and lateral two-thirds of the left chest cavity were occupied by a single large air-filled cyst of about 2 litres capacity. The anterior and lateral wall of the cyst consisted of thickened pleura and a small amount of lung tissue; the cyst lining was smooth and glistening and consisted of epithelium undergoing squamous metaplasia. In many areas the lining epithelium was desquamated and the wall was just fibrous tissue containing inflammatory cells. The whole lung weighed 610 gm., dissection showed a very marked depression of all the upper lobe bronchi to a level immediately below the single large cyst. Some lung tissue was left in the postero-lateral and antero-lateral segments of the left upper lobe. The very large bulla arose in the upper part of the postero-lateral segment. A bulla about 7.5 by 3.5 cm. was seen in the remaining tissue of the antero-lateral segment. A ball-valve mechanism could not be demonstrated in the bullæ, the specimen being dehydrated by infection. The left lower lobe was completely atelectatic and showed a number of small bullæ measuring up to 2 cm. in diameter. The remainder of the lung seemed normal. The right lung weighed 640 gm.; the pleural cavity was com-

pletely obliterated so that the lung tore during removal. There were a number of small bullæ at the base and at the apex. The rest of the lung showed a patchy broncho-pneumonia consolidation. Microscopic section showed early broncho-pneumonia with congestion and œdema. In most areas the small bronchi were dilated and contained muco-purulent exudate. Emphysema of varying degree was present and the interalveolar septa were thickened.

Reports of lung cysts have appeared with increasing frequency in recent years and there still seems to be a variety of opinion as to their etiology, classification, mode of investigation and subsequent therapy. Due to an apparent variety of etiological factors such as infections, acute and chronic, and mechanical obstructions, the classifications have been confusing. The roentgen diagnostic classification of Peirce and Dirkse[1] appears to be the most satisfactory grouping of these cases at present. Case 1 would seem to fall into their group of pulmonary pneumatocele although their definition ("a single or a few contiguous localized emphysematous alveoli"), appears inadequate. It is unlikely that any amount of alveolar distension could result in as large and as thick-walled bullæ as seen here, without a very marked degree of hyperplasia of the wall elements accompanying the distension. The hyperplasia is what emphasizes the essential "displacing" rather than "destructive" character of the lesion. It is stated by Weise[2] that bullæ of the lung may be found subsequent to any condition that interferes with the normal respiratory mechanics and various case reports in the literature appear to substantiate this statement.[3, 4] In the cases reported here the evidence is non-conclusive, but in Case 1 we may postulate some selective mechanism of partial bronchial obstruction of the check valve variety, probably following the patient's episode of severe non-productive cough in 1941.[5] This condition must have resulted in an acute or chronic intra-alveolar increase of pressure and resulting cyst formation by a process of stretching and hyperplasia.[6] Kaltreider and Fray[7] have shown that the air-filled cysts reduce the pulmonary reserve, and as their contents are not included in the residual air there is a marked reduction in the lung total capacity. In Case 1 the reserve was adequate as dyspnœa was never a factor, while in Case 2 the opposite was true. Also in the latter the cysts interfered with what the above authors describe as the pulmonary bellows mechanism. Both cases presented refute the view held by some that the bullæ volume destroys an equal volume of lung parenchyma; otherwise in the first case there would have been no lung parenchyma, and there would have been no lung to re-expand and certainly no reason for surgical interference. In the second case we are faced with the possibility that a considerable amount of useful respiratory epithelium might have been added if the cyst-bearing tissue in the left upper lobe had been removed with consequent re-expansion of the left lower lobe. Facilities were not available for spirometry studies of these patients. Pathologically there appears to be no typical picture, the only apparent constant finding being the accompanying chronic infection in the surrounding lung tissue.[7, 8]

It appears to be the general impression that cysts of the type described here are a progressive process with gradual increase in size. Subject to the complications of mediastinal emphysema and spontaneous pneumothorax the satisfactory result achieved in Case 1 would indicate that surgical excision of cyst bearing tissue has a place in the type of condition described.

I wish to express my appreciation to Dr. G. Anglin of the Chest Department and Dr. D. Burke of the Radiology Department of Christie Street Hospital for their encouragement and help in publishing these cases.

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TONICS VINDICATED?—The vegetable "tonics" have long been out of fashion in our medical schools—at most they have achieved passing mention in historical introductions to pharmacology—yet the family doctor has continued to prescribe some of them for their appetizing properties or merely as flavouring agents. Now it seems that there may be a rational basis for these traditional remedies. Chaikelis (*J. Am. Pharm. Ass.*, **45**: 343, 1946) has investigated the thiamine content of 41 genera of herbs and medical plants belonging to 20 distinct and separate botanical families, and has found that this ranges from 125 to 2,880 micrograms per 100 grams of dried substance. No less than 12 of the dried plants examined contained more than 1,000 μg. per 100 g. and only 5 contained less than 300 μg. The list includes buchu (1,965 μg. per 100 g.), caraway (722), camomile (1,154), dandelion (1,577), gentian (477), quassia (1,839), thyme (502), and white cinnamon (427). The two richest known sources of thiamine, wheat-germ and yeast, contain 2,000 μg. per 100 g., so some of these herbs run them close. It would be interesting to know how much of the thiamine content of herbs is extracted in making infusions. Chaikelis points out that the symptoms of thiamine deficiency include loss of appetite, fatigue, gastro-intestinal disturbances, muscular weakness, and lowering of the blood-pressure, and these are the very symptoms for which tonics are often prescribed. —*The Lancet*, March 8, 1947.

END RESULTS OF THERAPY IN VARICOSE VEINS*

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THE observation of the end results of therapy is extremely important. Improvements in treatment come about by noting, during follow-up, defects in methods used or perceiving better procedures. The follow-up of varicose vein cases is very important for this reason, and also for a second reason. A thorough check-up on cases shows that recurrences are much more common than often supposed, and these recurrences are so neglected that not only do the complications of varicose veins, such as ulceration or thrombophlebitis intervene, but small recurrences easily dealt with by injection are allowed to become so large that re-operation is necessary. Therefore, a knowledge of the rate and manner of recurrence after varicose vein therapy directly benefits the patient as proper preventive treatment can be instituted early.

To many the meaning of recurrences in varicose veins of the lower extremity is limited to the re-opening of a previously closed vein or group of veins. However, as one is attempting to cure a patient suffering from varicose veins, any return of varicosities is actually a recurrence in the condition, be the vein a previously treated vessel or an untreated vein or group of veins enlarged and become varicosed following the successful closure of other veins. Practically speaking in either case the patient has varicose veins once more and one must try to discover why they reformed and how best to prevent or delay reformation once again.

The variability in the reported recurrence rate of varicose veins is worthy of remark; especially as the recurrence rate in the series to be discussed in this paper is high. Sarma[1] found that of 98 patients with varicose veins and competent valves, treated by injection, 33 recurred in 1 to 5 years, and these developed incompetent valves; 34 of the group showed a "tendency to recurrence" of superficial veins and needed more injections. Of 132 patients with varicosities and incompetent valves, treated by ligation and injection, 92 had recurrences due to incompetent intercommunicating veins of the thigh, while 15 recurred from incompetent intercommunicating veins in calf and leg in addition. Sherman[2] found that of 214 ligations and injections 46% were unsatisfactory. Mahorner,[3] on the other hand, stated that the recurrence rate after high ligation and injection is likely to be 15%. A number of articles give a low recurrence rate, but new veins becoming varicosed are not counted as recurrences, and small reopenings of previously closed varicosities, easily reclosed by injection, are not counted.

The majority of cases reported in this paper were observed over a period of from 2 to 7 years in the Varicose Vein Clinic of the Toronto General Hospital. Some cases were found in which ligation, injection, excision or stripping had been done 20 or 30 years before and these cases are included. Also included are some cases seen in the army; especially a group of cases in which vein stripping was done. In the clinic cases careful charts were kept showing sites of veins before and after treatment, recurrences were shown and date of injections, operations, recurrences, etc., carefully recorded. In some of the patients treated by ligation, pre- and post-operative venous pressure readings, venous clotting and prothrombin times, venous flow rates by venography (Fig. 1), and infra red (Fig. 2) or colour photographs to help trace recurrences, were carried out.

The observations are best given for sake of brevity under a somewhat artificial grouping according to the type of treatment and varicosity. No case was counted as a cure unless it had gone 3 years without a recurrence. The more cases with longer time intervals one saw the more one deemed the term "cure" a euphemism and inclined toward the optimistic term "improved", without stating for how long.

Injection treatment alone, of cases with only a few varicosities in leg or thigh and no incompetent valves, resulted in 97 recurrences in 102 cases treated and followed for 3 years. The same or a new vein might be open. This recurrence rate is undoubtedly too high because many cases requiring only one or two injections to close the veins solidly could not be followed. Pregnancy, especially repeated pregnancy, increased the recurrence rate and changed a few small varicosities into diffuse large varicosities

* From the Varicose Vein Clinic, Toronto General Hospital.

with incompetent valves. Elastic stockings and hygienic measures during gestation, and injection of veins soon after delivery, helped check the varicosities. Following trauma, phlebothrombosis or thrombophlebitis, varicosities are liable to increase in number and size and here again elastic stockings are useful in prevention. It should be stated now that elastic stockings are worse than useless unless properly measured, made up and used.

Injection treatment alone, of cases with large or diffuse varicosities in leg or thigh, and no incompetent valves, nearly always resulted in recurrences. Elastic stockings or bandages not permanent and the treatment produced severe inflammation with severe general symptoms for some days and lymphœdema of the limb later on.

Operative treatments observed in follow-up were various. The cases operated on invariably had incompetent valves. The type of veins varied from the usual varicosed and incompetent long saphenous in thigh and leg, to diffuse and large incompetent varicosities in thigh and leg. The type of operation chosen for the different types of cases has varied but in recent years high ligation, or triple ligation, with injections, retrograde or after operation,

Fig. 1.—Measurement of venous flow before and after ligation. With the patient seated, legs at rest and dependent, 70% diodrast was injected into long saphenous above knee, before and after ligation. X-ray photographs were taken at intervals as shown to time rate of flow from superficial to deep veins and to point of dissipation, fluoroscopy also being used. **Fig. 2.**—Infra-red photographs of veins before and after treatment helped to definitely locate veins so that one could tell accurately whether previously closed veins recanalized; or if recurrent varicosities were enlarged and newly varicosed anastomotic veins.

were helpful. Twenty-six of these cases eventually developed incompetent valves and required ligation. Repeated pregnancies were almost certain to produce this result as was trauma, phlebothrombosis or thrombophlebitis. The incompetent valves may develop in groin, popliteal space, or in perforating vessels.

Injection treatment alone, of cases with incompetent valves, was of little value; of 33 cases injected and seen in follow-up, 33 recurred. Surgery is the answer unless definitely contra-indicated, when elastic stockings are of some help. Occasionally a case has been seen treated by massive injection but closure was has been favoured in the usual type having small or moderate long saphenous varicosities with incompetent valves. By and large the recurrences did not seem to be influenced by the type of operation or the type of varicosity; perhaps because the underlying causes of varicosity, which will be dealt with later, vary greatly.

High ligation, without retrograde injection, but usually with several injections 2 or 3 weeks after operation, resulted in recurrence of varicosities in 125 out of 132 cases. Much has been written about the efficacy of high ligation and poor results have been blamed on improper

technique such as missing the main or the branch vessels. However, the recurrences in this series were rarely due to such error but to various factors. In some cases branches near the anterior superior spine or pubes rapidly enlarged and in due course led to wide-spread recurrences (Fig. 3). In other cases multiple fine skin and subcutaneous venules carried a large volume of blood around the ligation site (Fig. 4). In still others, perforating vessels in the thigh caused enlargement of small veins and eventually new varicosities (Figs. 5 and 6). Twenty-six of the 132 cases were seen to renew varicosities by progressive enlargement and varicosity from the leg upward, the incompetent vein usually being a perforator in the leg or occasionally the short saphenous.

In a group of 50 cases specially studied, the long saphenous in the thigh was found to close spontaneously in 17 within a week or so of high ligation. Venography before and after operation confirmed the findings of others that the rate of blood flow in the tied segment of vein was decreased. Venous pressure readings pre- and post-operatively did not change until a vein had closed. Prothrombin time and clotting time did not vary greatly before or after ligation. Veal and Werden[4] have postulated that it is the slowing of the venous flow that leads to the thrombosis of tied veins.

High ligation with retrograde injection seemed to give a little longer closure of veins. However, the variability between cases makes it difficult to be entirely sure of this. Of 23 cases followed up, 21 showed new varicosities in 3 years (Fig. 7). The recurrences were usually entirely new varicosities but a long saphenous vein tied off and thoroughly sclerosed by injection has been seen to recanalize. Four cases have been seen in this series with severe lymphœdema following retrograde injection. There are similar unfortunate results reported in the literature. Sclerosing solution placed in a relatively empty vein, while the patient lies on the table, flows rapidly to deep veins in undiluted form. Atlas[5] has particularly warned against retrograde injection and has pointed out that a patient sensitive to sclerosing agent might die or become severely ill on the table; wounds may slough due to contamination with sclerosing fluid or due to puncture of the vein wall; most patients are not ambulatory after retrograde injection and are therefore more liable to deep thrombophlebitis, lymphœdema and embolism. One has frequently seen very sore inflamed legs, a fever up to 103°, and severe general symptoms. As there is no notable difference in the end results between high ligation with simultaneous retrograde injection, and high ligation with delayed postoperative injections, it is questionable if retrograde injection is worth the definite risks.

When triple ligation was done, that is ligation at groin and above and below knee, with or without simultaneous retrograde injection, 5 recurrences appeared in the 5 cases followed for 3 years. As already pointed out it is difficult to exactly compare cases and triple ligation was usually done in the more severe cases.

Multiple ligation of veins was extensively done at one time. Because of difficulty in tracing patients, often done many years ago, only 4 cases were seen. Recurrences were diffuse in all 4 and often occupied the site of a previous ligation scar (Fig. 8).

Wide excision of varicosities did not provide a 3-year cure in 10 of the 15 cases traced. One of these was unusually persistent in recurrence, for after a high ligation was done on his recurrences, following wide excision, varicosities again returned (Fig. 9).

Multiple excision of varicosities has been advocated from time to time. Four recurrences following this procedure were found in the four cases followed. One case had been subjected to multiple excision twice and twice reformed varicosities (Fig. 10).

Complete excision of varicosities by linear incision from groin to knee and knee to ankle might well be thought to discourage the ubiquitous varicosities. However, one case is worthy of note. J.B.'s leg was wounded in the Russ-Jap war of 1904. An ulcer developed. He had had varicose veins for some time. In 1912 the veins were excised from groin to ankle. The ulcer healed and has remained healed. The veins are now prolific and twine about the linear scars (Fig. 11).

Vein stripping has been regarded by many as the answer to incompetent varicosities. Nine of these cases could be traced. They were seen from 4 months to 2 years following high ligation and stripping from groin to knee or to below knee. Injections were rarely done. All 9 cases exhibited new varicosities. It was noteworthy that the varicosities all seemed to start from the calf and lower leg and extend upwards, some following closely the pattern of the pre-

viously stripped vein (Fig. 12, 13, 14). There were usually small veins appearing across the groin on one or other side of the high ligation site and these veins will probably become larger and varicosed unless injected. One admits that vein stripping permanently eliminates the vein stripped and is useful for very large discrete vessels in the thigh or in the leg if not too closely bound to the skin or to groups and whorls of veins. The procedure, of course, does not prevent new veins becoming varicosed and should always be followed by further injections, ligations or excisions of veins not stripped, or veins that enlarge or become varicosed. As usually treated these patients are confined to bed for more than a few hours after opera-

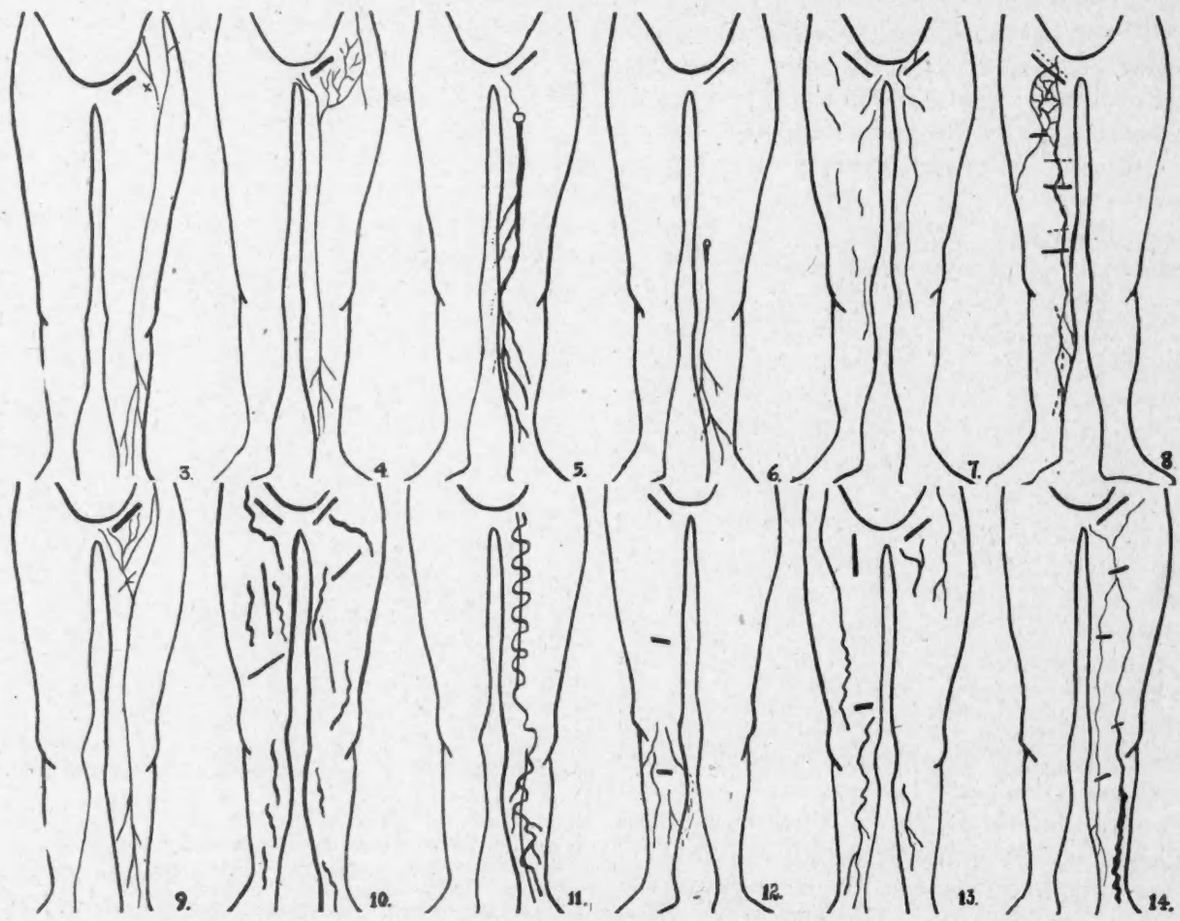

Fig. 3.—Adequate high ligation for incompetent long saphenous. In three weeks a fairly large vein appeared at X. In two years varicosities had reformed as shown from above down to the leg. **Fig. 4.**—Adequate high ligation for incompetent long saphenous. In two years large tortuous varicosities were again present in thigh and leg connecting in upper thigh with multiple fine thin walled veins as demonstrated at re-operation. **Fig. 5.**—High ligation incompetent long saphenous 1940 with good closure after several injections. In 1943 very large varicosities ran down thigh and leg as shown from perforator in thigh; one very small varicose vein ran toward pubes subcutaneously. **Fig. 6.**—High ligation incompetent long saphenous with good closure. In two years recurrence as shown from a perforator lower thigh. **Fig. 7.**—Bilateral high ligation and simultaneous retrograde injections followed by closure. In three years diffuse recurrences as shown. **Fig. 8.**—Dotted lines indicate multiple ligation and excision of veins done in 1915. In 1943 diffuse recurrence as shown connecting in groin with multiple small thin walled veins as demonstrated at re-ligation indicated by solid lines. **Fig. 9.**—Wide excision of veins recurred even in the old scars. In 1939 high ligation in groin closed the veins. In 1943 varicosities had recurred in the old sites as shown and re-ligation in groin showed diffuse thin walled veins which were connecting the recanalized long saphenous system with the femoral vein. **Fig. 10.**—Multiple excision veins on two occasions. Recurrences as shown four years after second multiple excision. **Fig. 11.**—Complete excision veins thirty years ago. Varicosities gradually recurred and in 1943 were as illustrated. **Fig. 12.**—Long saphenous varicosity stripped groin to upper leg; no injections. Recurrence of varicosities in two years. **Fig. 13.**—Vein stripping of varicosed right long saphenous groin to knee; no injection; recurrences in six months as shown. High ligation followed by injections on left side; recurrences as shown after three years. **Fig. 14.**—Varicosed long saphenous stripped groin to calf and veins injected afterward. Recurrences as illustrated two years after operation.

tion. This is a hazard that is not necessary and is not justified. If vein stripping is to be so extensive that bed rest is necessary then the danger of embolism negatives the procedure.[6]

SUMMARY

From the above observations it is obvious that recurrence of varicosities is frequent after any sort of operative procedure for incompetent varicosities of the lower limb. The surgeon would prevent these recurrences becoming so large that they again required operation or caused phlebitis, ulceration, etc., if he warned the patient to return as soon as any small varicose veins reappeared. Better still, patients could be asked to report for inspection at 3 months, 6 months, a year or 2 years etc. Most recurrences can be kept in abeyance by suitable injection treatment.

It is also obvious from the foregoing that recurrences vary greatly in their time of appearance, their site of appearance and the mechanism of spread. Some commence from incompetent intercommunicating veins of thigh or leg, others from minute but numerous meshes of venules in the groin, others commence slowly or rapidly from one or more venules that become large veins and then varicose veins anastomosing around the sites of ligation. This variation cannot be explained by the type of operation or the size or pattern of the vein tied. It is more likely that factors frequently overlooked are the cause of recurrence and the variability of recurrence.

Warwick[7] and some French authors believe that the deep veins may be the primary site of varicosities in certain cases. Warwick observed that the deep valves varied and were frequently incompetent. Luke[8] has shown by venography that even in apparently normal patients the deep valves may be incompetent. This sort of congenital or acquired defect may lead to ectasia of the vein wall and to the incompetence of other valves until the superficial veins are involved. Trendelenburg[9] long ago pointed out how inflammatory or degenerative changes could render valves incompetent or how similar changes in the vein wall could secondarily affect the valves and render them incompetent and the vein varicose. As Mahorner[3] has pointed out it is often difficult to tell whether ectasia started at the periphery and worked up, or at the main valves and came down. In our own series we have frequently followed a patient's varicosities from a few on the calf to larger more numerous ones in leg and thigh and finally a complete long saphenous incompetence.

Lesser,[10] Sherman,[2] Stalker,[11] Postlethwait,[12] and many others have demonstrated great variations in the pattern of the veins of the lower extremity and in the valves. Friedreich[13] found valves in the external iliac vein in only 35% of 185 cadavers. Eger[14] found valves missing frequently in the external iliac or femoral veins.

Homans[15] and Edwards[16] demonstrated the importance of proper high ligation but many cases recur from below up because valves of the leg and thigh perforating veins are incompetent, others recur from a short saphenous incompetence, some because of blockage of part or all of the deep veins, or because of their valves being absent or incompetent. Linton[17] has shown very clearly the important rôle incompetent perforating veins of the leg play in varicose veins. One recalls that in performing the Kondoleon procedure great masses of veins with incompetent valves are frequently encountered, both superficial and deep to the fascia.

Therefore, each case of varicose veins should be individually studied and a great aid in this, apart from our present well known tests, would be suitable visualization of the deep veins. In this study, concentrated diodrast (70%) was used with excellent results, but because of accidents reported, such as anaphylactic shock, thrombophlebitis, embolism and lymphœdema, further injections were discontinued. Further work in recent years has shown that the present solutions and methods in use are reasonably safe when proper precautions are taken, and venograms should be done in many cases, especially those that have recurrent varicosities. Operations could then be planned according to the pathological change portrayed in the venogram.

CONCLUSIONS

"Recurrences of varicosities" should include recurrences in vessels previously treated and also any untreated newly varicosed veins.

Small and infrequent varicosities with competent valves tend to remain closed for long periods after injection, but repeated pregnancies,

thrombophlebitis, or trauma, accelerate recurrences and the appearance of incompetent valves.

Large or diffuse varicosities, associated at first with competent valves, tend to progress to recurrence with incompetent valves. This is especially so after repeated pregnancies, thrombophlebitis or trauma.

When varicosities of the lower limb are associated with incompetent valves, recurrences always take place following injection and are very frequent following operative procedures. The operative procedure of choice depends on the individual case. The more radical procedures should be reserved for the most severe cases, or for cases recurring after high or triple ligation and postoperative injections.

Varicosities of the lower limb, under modern treatments, tend to recur and progress. This is chiefly because the underlying causes, such as congenitally absent valves or defective veins, or acquired incompetence of valves and degeneration and ectasia of veins, together with obesity and relaxed skin and subcutaneous supports, are difficult to correct. Therefore, all varicose vein patients should be followed carefully and recurrences closed early before they require reoperation or produce complications.

Venography should be done more frequently, as it would be of great help in outlining the correct procedure in individual cases and portraying the cause of failure in recurrent cases.

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What are medical statistics? They are the records of human sorrow, of broken lives, of deaths, reduced to neat columns of figures, all very tidy, *with the tears wiped off*.—Quoted by Major Greenwood in *Health Horizon*, July, 1947.

MEDICAL ASPECTS OF CIVIL DEFENCE*

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THE efforts of the medical profession did much to minimize the effects of attack by high explosive and incendiary bombs in World War II. Should another war occur, we must be prepared to defend ourselves against the added hazards of attack by atomic bombs and by chemical and biological weapons. The advent of these new forms of attack will add greatly to the responsibilities of the medical profession in our preparations for the defence of the nation.

There is no need to attempt to trace for you the evolution of the Civil Defence services in World War II. It is sufficient for our purpose today merely to enumerate the functions of medicine in those services. The most important of these was the rescue and treatment of casualties. The problems encountered in this field were very like those of the Armed Forces. Rescue was mainly done by non-medical personnel, but it was always necessary to have someone with medical knowledge available to treat those who could not be rescued immediately and to supervise the removal of the injured from damaged buildings. The need for a well-trained first aid service to begin treatment before the victim reaches hospital is obvious. The organization of hospital services for the care of casualties is a most difficult administrative task, but presents no very novel medical features. The aim is to provide facilities for the rapid and effective treatment of large numbers of casualties with special emphasis on the early treatment of shock and the performance of urgent surgery at the earliest opportunity. The extensive blood transfusion services that grew up were an important ancillary to this part of the organization.

The maintenance of public health under the dislocations produced by air war, is one of the most important aspects of civil defence. Modern public health organizations proved to be effective enough to solve these problems relatively easily and as a result the public paid little attention to them. The prevention of epi-

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demics, due to crowded conditions in shelters or in a community where water, food, garbage removal, sewers and other services had been damaged, was the main problem. This problem can be solved by the rapid and effective application of known public health measures.

The problem of maintaining the will to resist in a community that is under attack, is a most complex one. The importance of the contribution of the medical profession, especially psychiatrists and psychologists to the solution of this problem is obvious.

If another war occurs all these problems will recur and if we profit by the experience of the last war, we should be able to solve them effectively. However, any future war is likely to differ in three important ways from wars of the past. These differences are: the time scale of events will be shortened; the extent of single areas of instantaneous destruction will be much greater; and there may be new types of casualty due to chemical and biological attack and to atomic bombs. I shall briefly elaborate on the importance of each of these new factors.

TIME SCALE

Experience in Britain can be taken as representative of what might happen here. In 1938 and 1939, before war was declared, the British public were almost panic-stricken by the prospect of air attack. This state of mind was attributable to exaggerated reports of the damage done in Spain and to the fact that the public had not yet fully realized that their courageous resistance to demoralization by air attack would be an essential part of a fight for their very homeland. At this stage, a single atomic bomb on London might have induced in many a desire to surrender.

As soon as war was declared and the issues became clear, every trace of panic disappeared. It was replaced by a reasonable apprehension coupled with a firm resolve to help defeat the Germans by minimizing the effects of the air raids on the life of the country. Instead of a single atomic bomb, there were no attacks at all for several months and when the attacks came, they were relatively small, and Londoners soon found that they could "take it". When the scale of attacks increased, they were already hardened to accept casualties and there was no faltering in morale. One of our greatest problems in a future war will be so to indoctrinate the Canadian people in advance that they will be prepared to accept very severe casualties in the first attack, even without previous experience of air attack. This will probably not be as difficult as it might sound, because from the point of view of an individual or a family, the results of a near miss by a 100-pound bomb are very similar to those of a much more distant atomic bomb explosion and the results of a direct hit are identical.

AREAS OF DESTRUCTION

In World War II, the civil defence services, including fire-fighting, rescue and repair services and the whole medical organization, could safely be planned on a local and to a considerable extent, a voluntary and part-time basis. This was possible, because in all but a very few of the worst raids, the damage was local and patchy. Even where a pattern of large bombs was dropped on a small city, the rescue services which covered the area like a net, were always left with enough survivors and equipment to do their task. When an atomic bomb is dropped on a city of any size, there will be a large area of complete destruction in which none of the rescue services will survive at all. All fire-fighting, rescue and medical services will have to be brought in from outside the area of destruction. This will require a fundamental change in the whole organization of civil defence. Under atomic attack it can be assumed that the only area in which civil defence services will not be called upon to work, will be the area in which they are stationed.

This means that the civil defence services will have to consist of highly mobile task forces stationed in areas that are not themselves attractive targets for atomic bombs. This in turn implies full time services with their own transport and communications—in fact an organization much like an army. In heavily populated areas, the civil defence units of adjacent communities can be mutually supporting but such an arrangement is not possible for the relatively isolated cities of western Canada such as Winnipeg. The civil defence problem in Canadian cities is further complicated by the difficulty of finding immediate shelter, especially in winter, for the thousands of people who might be rendered homeless by a single atomic bomb.

CHEMICAL AND BIOLOGICAL WARFARE

The civil defence aspects of chemical and biological warfare can be divided into three main problems: (1) Defensive preparations. (2) Detection and identification of agents. (3) Treatment of casualties and decontamination. I shall confine my remarks to the less familiar field of biological warfare.

1. *Defensive preparations.*—The toxicity of many biological agents is so great that it will tax the ingenuity of the designers of protective clothing and respirators, but even so considerable protection will be attainable in this way. However, the most important preparatory measures will be the immunization of the population against the organisms that are most likely to be used. This will involve an extensive research programme to achieve effective means of producing immunity against a considerable number of organisms ranging from viruses to yeasts. It will also require a vast organization to produce and administer the immunizing materials. The public will have to be thoroughly aroused before they will submit willingly to the many inoculations that will be required.

2. *Detection and identification of agents.*—Most of the agents of biological warfare cannot be detected by the ordinary senses; they have no distinctive appearance, smell or taste, nor do they announce their presence audibly. Their toxic effects do not appear for a time which ranges from a few hours to a few days. By the time they are detected and identified, the moment for successful treatment or control may have passed. Early detection is especially important in the case of organisms, such as rinderpest in cattle, which may produce rapidly spreading epidemics. It is apparent that any future civil defence plans must envisage a most effective organization for the early detection and identification of biological attack.

3. *Treatment of casualties.*—The ultimate aim should be to produce immunity in the whole population to all the agents that might be used in biological attack. This will not be possible, both because of the practical difficulty of immunizing everyone, and because there is no known way of producing effective immunity to many potentially dangerous organisms. Consequently, it will be necessary to plan for the treatment of casualties. These plans must include intensive research in the therapy of the diseases that might appear, the preparation and storage of both specific and non-specific remedies in adequate amounts, and the education of the medical profession in the diagnosis and treatment of such of the diseases as they would not encounter in their normal practice.

Atomic bomb casualties.—More than half the casualties due to atomic bombs are likely to be ordinary traumatic injuries, similar to those caused by high explosive bombs. The remainder will be flash burns due to radiant heat from the bombs, and cases of gamma ray injury. The treatment of the flash burns presents no new problems. The cases of gamma ray injury will present most complex problems in symptomatic treatment. The object of the treatment is to keep the patient alive in the hope that the blood-forming mechanism will recover. None of the bomb victims in Japan were given adequate treatment, so we have no experience to serve as a guide for future planning. However, the main lines of treatment will undoubtedly be repeated transfusion, and the administration of suitable drugs to control intercurrent infection and to prevent hæmorrhages.

SUMMARY

What I have said can be summarized thus. If we wish to defend Canada against possible attack in a future war we must plan and, when the need arises, organize an effective civil defence system. Such a system must include:

1. Psychological preparation of the population to accept casualties without losing the will to fight.

2. A widespread and effective organization for the detection of attack by chemical and biological agents.

3. A complete and effective organization for the rescue and treatment of casualties from all causes. This organization must be planned to deal with the widespread destruction caused by atomic bombs.

These are merely the parts of the system in which the medical profession will have to play a dominant part. It is obvious that they cannot succeed except as a part of a complete system which must include such other things as an effective air-raid warning system, fire-fighting, repair and rehousing services, adequate shelters, decentralization of key services and of course, an effective active defence by the Armed Forces.

In closing, I would like to emphasize my own view that such preparations for war as I have

outlined, should be regarded merely as a part of a program for the ultimate elimination of war. If we all do our utmost to perfect the democratic way of life in Canada and throughout free countries, and if we make it clear that we have sufficient faith in our cause to fight and to win should the need arise, then there is a good chance that another war will not occur. There is great danger that, in times of peace, we may take for granted the very freedom for which we fought. If this happens, we will certainly lose that freedom.

You have a double responsibility in this larger aim of preventing war. You must do your best to perfect our Canadian democracy and to help in keeping it prepared for defence, and you must also do all that you can to promote international goodwill as members of the world community of science and medicine.

CLINICAL AND EXPERIMENTAL STUDIES WITH MYANESIN*

(A Preliminary Report)

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IN December, 1946, following an investigation of numerous a-substituted ethers of glycerol, Berger and Bradley[1] reported on the pharmacological properties of a:b dihydroxy-y-(2 methylphenoxy) propane. This compound, which they named myanesin, produced transient relaxation and paralysis of skeletal muscles in animals, and showed a wide margin of safety between paralyzing and lethal doses. They also found that in small amounts it effectively antagonized strychnine convulsions, and from this inferred that the drug exerted a depressant action on the reflex excitability of the spinal cord. Shortly after, in a series of 112 clinical cases, Mallinson[2] discussed its value and safety as a muscle-relaxing agent when used as an adjunct to anæsthesia.

These observations prompted the present study to gather information on the site or sites of action of this drug, in order to evaluate more fully its therapeutic usefulness. For this purpose clinical trials, aided by electroencephalograms, have been carried out on a number of patients, and certain experimental data have been recorded. The results have been sufficiently interesting to warrant a preliminary report.

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I. Clinical Procedure

Myanesin was administered alone to patients in an arbitrary dosage of 30 mgm. per kg. of body weight. The drug was given into an arm vein in 10% solution at a rate of 1 to 2 c.c. per minute. Clinical reactions were noted closely, and on seven patients electroencephalograms were recorded before, during and after injection, using the standard scalp surface and ear electrodes, as well as the basal electrode placed in the posterior nasopharynx for recording the electrical activity of deep-lying cerebral structures.

Case Studies

The cases to be reported can be classified into three groups: (1) patients suffering from diseases of the extrapyramidal nervous system; (2) those having frequent recurrent intractable pain; (3) patients with known spinal cord lesions.

Extrapyramidal Diseases

Case 1

Mrs. F., aged 46. Weight 150 pounds. Dose 2,000 mgm. For twelve years this patient had suffered from a marked "pill-rolling" tremor at rest and increased muscle tone involving all extremities, but principally the right arm and leg. There was also a mask-like facies. These symptoms had led to a clinical diagnosis of paralysis agitans. On two separate occasions she was given 20 c.c. of myanesin over a ten minute period. After 900 mgm. the tremor and spasm disappeared and remained completely absent for 30 minutes. During the next 45 minutes there was a gradual return of the spasm and tremor, although the patient reported that these symptoms remained less severe than usual for 12 hours. Voluntary motor power was not impaired during the time in which the drug was acting. The electroencephalogram recorded from cortical leads only showed no alteration in pattern during or after the administration.

Case 2

Mr. M., aged 56. Weight 156 pounds. Dose 2,000 mgm. Since 1941 this patient had been gradually developing a spastic paraplegia. At the time of examination he could not walk unassisted. In 1942 he began to have a Parkinsonian-like tremor of the left arm, without increased muscle tone, and this persisted. It was believed that these symptoms represented two distinct lesions, the spastic paraplegia being the result of a disease of a separate part of the motor system than that causing the tremor, which seemed clearly of the type attributed to the extrapyramidal system. On two occasions he was given 20 c.c. of myanesin, and each time after 800 mgm. the tremor of the hand ceased completely and remained absent for 45 minutes. Following this the tremor began to return, but the patient

stated that it was improved for 24 hours. However, no decrease in the degree of spasticity of the legs was noted, and the patient found it no easier in his attempts to walk after the injection. Voluntary motor power, as measured objectively by the dynamometer, was not decreased during or after the administration. The electroencephalogram showed some decrease in the amplitude of the brain waves when the full dose of myanesin had been given, but no basic alteration in the pattern of the waves was seen.

CASE 3

Mr. C., aged 39. Weight 150 pounds. Dose 2,000 mgm. In 1922 this patient was struck in the right eye by a hockey stick, was unconscious for a few minutes, and blind for 48 hours. He appeared to recover completely, but in 1937 began to have marked Parkinsonian-like tremors of the left face, left arm and left leg. These persisted in spite of several forms of therapy. There was no spasm or increased tone associated with the tremor. He was given 20 c.c. of myanesin, and after 1,000 mgm. the coarse tremor of the extremities and face stopped; but there persisted even after the full injection a "pill-rolling" tremor of the left hand. This had been masked before injection by the presence of the coarse tremor. The normal tremor began to return after 60 minutes, and was back to its previous severity after 75 minutes. Motor power was not diminished during the procedure. Certain abnormal electrical waves recorded from the basal leads of the electroencephalogram disappeared during the absence of the coarse tremor. The waves from the cortical leads were unchanged during the administration.

CASE 4

Mr. N., aged 58. Weight 170 pounds. Dose 2,000 mgm. For several years this man had had a combined coarse tremor and athetosis involving the head and both arms. Associated with this had been a constant noise in the left ear. He was believed to be suffering from a familial type of basal ganglia disease which was present in three other members of his family. He was given 20 c.c. of myanesin, and after 600 mgm. the tremor and athetosis stopped completely. At the same time the patient volunteered that the noise in his ear had disappeared. The symptoms began to return after 45 minutes, but were improved for 4 hours. No loss of voluntary motor power was seen during the administration. There was no change in brain wave activity seen from the cortical leads of the electroencephalogram. Recordings from the basal lead were not made.

CASE 5

Mr. F., aged 49. Weight 135 pounds. Dose 1,800 mgm. Since the age of eight this intelligent patient had suffered from generalized gross athetotic movements which required considerable muscular effort for their control. He had a scissors-type gait and found walking a trying procedure. Several types of medication and one operation had failed to influence the condition. He was given 18 c.c. of myanesin, and after 1,000 mgm. his athetotic movements were much less pronounced. When the injection was completed, the patient stated that he felt pleasantly relaxed, and that in his estimation the abnormal movements were reduced by 80 to 90%. Those remaining were controlled easily by voluntary muscular effort, which was not impaired by the drug. Walking was considerably less strenuous than he normally found it. The gross athetosis began to return after 75 minutes, but the patient believed that the movements were less pronounced for the following three days.

CASE 6

Master A., aged 9. Weight 50 pounds. Dose 700 mgm. This congenital spastic had a mental age of approximately four months. He could not feed himself, could not sit up, and could not talk. The trunk and all extremities were spastic. Encephalogram showed greatly enlarged ventricles. He was given 7 c.c. of myanesin, and at the end of the injection appeared asleep, with the trunk and extremities completely flaccid. However, both intercostal and diaphragmatic respiratory movements were unimpaired, and there was immediate reaction to pinprick by withdrawal of the limb and loud crying. The spasticity began to come back after 30 minutes, with return to the former state in 40 minutes.

CASE 7

Mr. M., aged 20. Weight 135 pounds. Dose 1,700 mgm. Beginning shortly after birth this young man had a tremor with accompanying spasticity of the left arm and leg. In the last five years he had also developed a tremor of the right arm. He was believed to be suffering from a disease of the extrapyramidal nervous system. On three occasions he was given 17 c.c. of myanesin, and after 800 mgm. both the tremor and spasticity disappeared and remained absent for one hour. Improvement in the symptoms was noted for 48 hours. Voluntary motor power, measured objectively by the dynamometer, was not impaired during or after the administrations. The electroencephalogram showed evidence of relaxation while the myanesin was active, but there was no basic change in the pattern of the brain waves from cortical or basal leads.

INTRACTABLE PAIN OF CENTRAL ORIGIN

CASE 8

Mrs. T., aged 35. Weight 82 pounds. Dose 1,200 mgm. Three months prior to hospital admission this patient had developed a spastic paraplegia of the lower extremities with rapidly progressive muscle atrophy. She also had severe paroxysms of burning pain, lasting about 45 seconds, which began in the lower back and abdomen and spread like a wave down both legs. This pain recurred every 4 to 6 minutes and was accompanied by marked spasms of the abdominal muscles and flexor muscles of the legs. There was no evidence of spinal block by manometric study, and x-rays and myelogram were normal. The diagnosis was obscure, but, on the supposition that it might be the strong muscular contractions which were causing the pain, the patient was given 140 units of intocostrin. This provided complete muscular paralysis, except for continuing diaphragmatic action, but had no effect on the severity or time interval of the regular attacks of pain. On three different occasions she was given 12 c.c. of myanesin, and in each instance after 500 mgm. there was complete relief from the painful spastic attacks for 45 minutes, and the lower extremities became flaccid. After this period the attacks began to recur as before. The electroencephalogram recorded before myanesin was representative of that seen in tense, anxious patients. This tense picture disappeared when the drug was being given, but there was no change noted in the basic pattern of the electrical waves.

CASE 9

Mrs. C., aged 56. Weight 112 pounds. Dose 1,000 mgm. In January, 1947, this patient developed a sudden hemiplegia due to cerebral thrombosis. About six weeks later she began to have two to four attacks a day of severe pain in the hemiplegic arm, often associated with flexor spasms. Each attack lasted about two hours and did not respond to any type of therapy except large amounts of opiates. The pain was believed to be "thalamic" in nature. On three different occasions she was given 10 c.c. of myanesin, and in each instance with 400 mgm. there was complete relief of pain and associated muscle spasm. Twice the pain recurred after 40 minutes, while the third time the patient was comfortable for 4 hours. Voluntary motor power was not decreased during or after the administration.

CASE 10

Mr. B., aged 44. Weight 130 pounds. Dose 1,700 mgm. In 1945 this patient developed a severe post-herpetic trigeminal nerve neuralgia, principally over the ophthalmic division. The pain persisted constantly, in spite of such therapeutic measures as trigeminal rhizotomy, stellate ganglion block, Gasserian ganglion block, sphenopalatine block, and fever therapy. It was concluded that the origin of the pain was probably central. He was given 17 c.c. of myanesin, and after 400 mgm. stated that he had complete relief from his pain, although a drawing sensation remained in the side of his face. The pain began to return after 70 minutes, and was back to its former severity in another 30 minutes. Voluntary motor power and sensation to pinprick were unaltered while the effects of myanesin were active. In the electroencephalogram no gross alterations were seen in the pattern of the brain waves, but there was some increase in the normal alpha rhythm during and after the administration.

LESIONS OF THE SPINAL CORD

CASE 11

Mr. M., aged 16. Weight 125 pounds. Dose 1,000 mgm. For three years this patient had had clinical signs of a complete spinal lesion with paraplegia and spasticity of both lower extremities. He had a long-standing history of tuberculosis. X-rays of the spine showed a tuberculous lesion involving the 6th, 7th, and 8th thoracic vertebræ. He was given 10 c.c. of myanesin, and following injections no change was noted in the degree of spasticity.

CASE 12

Mr. P., aged 63. Weight 156 pounds. Dose 2,000 mgm. For three months this patient had complained of a numbness and tingling in the left arm and shoulder. X-rays of the cervical spine showed gross bony changes on the left side about the 5th, 6th and 7th cervical vertebræ. The diagnosis was a lesion causing pressure on the cervical nerve roots. He was given 20 c.c. of myanesin, with no effect on the degree or character of his numbness and tingling.

GENERAL SIDE REACTIONS

Up to the present myanesin has been administered on some 50 different occasions. Certain reactions common to each patient were observed while the drug was being given, and these may be noted as follows:

1. *Cardiovascular system.*—With one important exception, no significant alterations in pulse or blood pressure were evident during or after the injection. In three patients with hypertension, no fall in pressure was noted. Almost all patients complained of a hot or flushed feeling during administration and usually the face and neck became reddened temporarily. One patient who was receiving the drug in the sitting position developed a sudden syncope after administration of 2.0 c.c. This was explained as an acute cerebral anæmia coincident with the noted signs of widespread vasodilatation while in the sitting posture.

2. *Respiratory system.*—There were no subjective complaints of difficulty in breathing and no evidence was noted of intercostal paresis. In two patients there was slowing of the respiratory rate, but it did not fall below twelve per minute.

3. *Mental reactions.*—With the dosage given, none of the patients went to sleep, nor were any sleep patterns seen in the electroencephalograms. At all times questions were answered correctly, but in some cases slowing of speech was apparent. During administration no apprehension was felt, but most patients complained of feeling "dopey", "relaxed" or "heavy". After completion of the injection the dopiness disappeared within 2 to 3 minutes, but the relaxed feeling persisted for about an hour. Most patients exhibited a mild degree of euphoria during this latter period.

4. *Neurological reactions.*—Apart from relief of presenting symptoms, as described in the case studies above, the principal neurological alteration seen in all patients was a coarse nystagmus present in all directions, associated with inability of the eyes to converge. This began after about 10 c.c. of myanesin had been given and lasted for 20 minutes following injection. According to Bender and O'Brien,[3] with personal observations by the latter, this myanesin nystagmus is indistinguishable clinically from barbiturate nystagmus, and may be central in origin. As noted above, voluntary motor power, determined clinically and by objective measurement, was not decreased in any patient. Also, pain reaction to pinprick showed no alteration. Superficial and deep reflexes were unchanged.

5. *Urinary changes.*—Within eight hours of administration, ten patients noted that their urine was reddish-brown in colour. One case reported dysuria and frequency for several hours. Examination of the altered urine showed no leucocytes or erythrocytes, but the orthotolidine test for blood was strongly positive, and small quantities of albumen (30 to 100 mgm. %) were present. These findings indicated that in some patients the administration of myanesin produced hæmolysis of blood. No traces of blood were seen in specimens passed more than eight hours after injection.

6. *Local irritation.* — Seven patients experienced about the site of injection some degree of inflammatory reaction which appeared clinically to be a localized thrombophlebitis. The soreness and redness disappeared completely within 48 hours of its appearance. For this

reason, however, no subcutaneous or intramuscular injections were attempted.

Electroencephalographic Interpretations

The electroencephalographic studies carried out with seven of the patients showed no evidence of significant alteration in the electrical activity of the cortex with the maximum doses of myanesin employed. In certain cases which displayed increased nervous tension, the increase in normal alpha rhythm following myanesin suggested a degree of general relaxation. However, no slow waves, which might indicate a depression of cortical function, were observed. Abnormal waves recorded from the base of the brain—probably diencephalic in origin—disappeared from the electroencephalogram with the disappearance of the clinical signs and symptoms.

Clinical Observations

1. It is apparent that involuntary movements of the type seen in diseases of the basal ganglia can be abolished for short periods by intravenous myanesin.

2. Intractable pain of central or thalamic origin may also be stopped for a short time by this drug.

3. Spasm and paræsthesias due to lesions of the spinal cord are not affected by myanesin.

4. The preservation of voluntary motor power and sensation, along with the lack of change in electrical activity in the cortical leads of the electroencephalogram, indicate that this compound exerts no direct action on the cortex of the brain.

5. In those cases where myanesin has a beneficial action, it requires only a fraction (6 to 10 c.c.) of the total dose to produce the desired effect. This tends to show that the drug has a selectivity of action.

6. The eye changes seen in all patients point to a site of action somewhere in the brain stem between the cortex and the medulla.

7. In the doses and at the rate administered, there is no indication that myanesin has a severe toxic action.

8. Myanesin cannot be considered an anæsthetic drug when used in the method described.

II. Experimenal Procedure

Twenty-five experimental studies on eight cats were carried out with the object of studying the action of myanesin on (1) nerve conduction, (2) the neuromuscular junction and (3) synaptic transmission within the cord. These experiments were performed three to twenty-four hours after transection of the spinal cord at the lower thoracic levels. The nerve and muscle action potentials were recorded on the cathode ray oscilloscope.

Nerve-Muscle Preparations

In the first series of experiments the sciatic nerve was exposed completely on one side from the sciatic notch, and all its connections severed except that to the tibialis anticus muscle. A stimulating electrode was placed on the sciatic trunk as close to the sciatic notch as possible. One bipolar silver recording electrode was placed on the nerve to the tibialis anticus muscle near its entrance to the muscle. Another recording electrode was inserted into the muscle itself. When the nerve was stimulated, both the nerve and muscle action potentials were recorded by means of the standard vacuum tube amplifiers and a cathode ray oscilloscope. Fig. 1 shows a record of the normal nerve

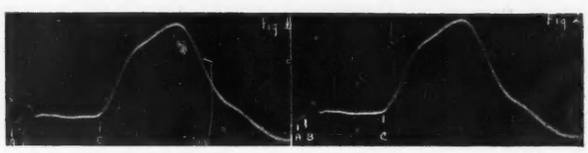

Fig. 1.—Showing normal nerve and muscle action potentials. Recorded at 3.2 millivolt gain per inch and 2.5 milliseconds velocity per inch. (A) Stimulus artefact; (B) beginning of nerve action potential; (C) beginning of muscle action potential; (AB) nerve conduction velocity; (BC) neuromuscular conduction time. **Fig. 2.**—Recording 2 minutes after intravenous injection of 20 mgm. of myanesin per kilogram body weight. Gain and velocity as in Fig. 1. There is no change in nerve and muscle action potentials, in neuromuscular conduction time, or in nerve conduction velocity.

and muscle action potentials, and indicates the conduction time of the stimulus from nerve to muscle. The nerve conduction velocity, as measured from the stimulus artefact to the nerve action potential, was found normally to be about 90 metres per second.

When myanesin in doses from 10 to 30 milligrams per kilogram of body weight were administered intravenously, there were no changes in nerve and muscle aetion potentials, in neuromuscular condition time, or in nerve conduction velocity (Fig. 2). In doses of 40 mgm. per kilo, the alterations in the record were slight and equivocal. However, on giving doses of 50 mgm. per kilo, there was marked depres-

sion of the nerve and muscle action potentials and a definite prolongation of the nerve-muscle transmission time (Figs. 3a, 3b, 3c and 3d).

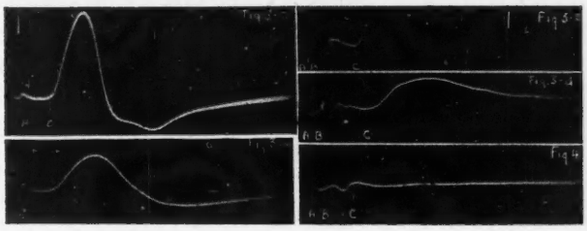

Fig. 3A.—Showing normal nerve and muscle action potentials before injection of myanesin, with gain at 3.2 m.v. and velocity of 5 m.s. per inch. **Fig. 3B.**—Record taken 2 minutes after injection of 50 mgm. of myanesin per kilo. Voltage and velocity as in Fig. 3A. Note pronounced fall in muscle action potential. **Fig. 3C.**—To show the normal nerve and muscle action potentials with a gain of 12.8 m.v. and a velocity of 2.5 m.s. per inch. The muscle action potential rises far off the record. **Fig. 3D.**—Record made 3 minutes after injection of 50 mgm. of myanesin per kilo. Voltage and velocity as in Fig. 3C for adequate comparison. Note diminution of nerve action potential (B), prolongation of neuromuscular transmission time (BC), and prolongation of nerve conduction time (AB). **Fig. 4.**—Record after injection of 70 mgm. of myanesin per kilo. There is almost complete absence of nerve and muscle action potentials.

When 70 mgm. per kilo were injected, there was complete absence of nerve and muscle action potentials (Fig. 4), and in addition no visible muscle contraction was seen.

CONTRALATERAL CORD TRANSMISSION

A second series of studies were made in which the sciatic nerves were exposed on both sides and records obtained when stimulating one sciatic nerve and recording the nerve action potentials from the other sciatic nerve after conduction of the impulses through the spinal cord. With injections of 10 to 40 mgm. per kilo intravenously, no change from the normal was seen in the nerve action potential (Fig. 5a and 5b). When 50 mgm. per kilo were given, there was depression of the nerve action potential (Fig. 6). With a dosage of 70 mgm. per kilo, there was complete obliteration of the nerve action potential (Fig. 7).

In all the experiments the drug began to act within 30 seconds of administration, and the effects persisted for about seven minutes. In doses of 20 and 30 mgm. per kilo the cats became somewhat drowsy and relaxed, but could be roused easily by stimulation. When 50 mgm. per kilo were given, the cats did not respond to painful stimulation and appeared deeply anæsthetized. The animals died with a dosage of 60 to 70 mgm. per kilo.

EXPERIMENTAL OBSERVATIONS

From the above results certain observations can be made: (1) With doses of myanesin up to 40 mgm. per kilogram of body weight no measurable effect was shown on nerve and muscle action potentials, on transmission at the neuromuscular junction, on conduction along the sciatic nerve, or on synaptic transmission of impulses through the spinal cord. (2) in doses

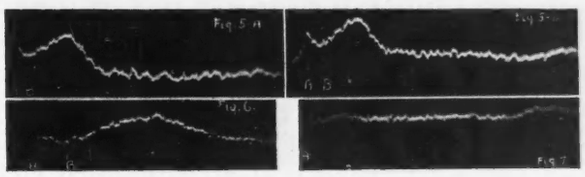

Fig. 5A.—Normal recording of nerve action potential after transmission through spinal cord. Gain is 12.8 m.v., with velocity of 2.5 m.s. per inch. (A) Stimulus artefact; (B) beginning of nerve potential. **Fig. 5B.**—Record 2 minutes after injection of 30 mgm. of myanesin per kilo. No change in potential is seen. **Fig. 6.**—Record 3 minutes after injection of 50 mgm. of myanesin per kilo. Note the depression of the nerve action potential. Gain and velocity as in Fig. 5. **Fig. 7.**—Record 3 minutes after injection of 70 mgm. of myanesin per kilo. Gain and velocity as in Fig. 5. There is complete obliteration of the nerve action potential.

of 50 mgm. per kilo and above, there was marked depression to absence of all the functions which were recorded. The diminution in response was generalized, and not directed specifically towards any one reaction. The dosage which produced these effects was close to the lethal dose for these animals. (3) Generalized reactions to myanesin were seen in cats with doses of 20 to 30 mgm. per kilo, and the minimal lethal dose was found to be 70 mgm. per kilo.

CONCLUSIONS

From the animal experiments it may be concluded that, until relatively large doses are given, myanesin has no effect on transmission of nerve impulses through the synapses of the spinal cord, on conduction of impulses along a nerve, or on transmission of impulses across the myoneural junction. These facts tend to be corroborated by the absence of clinical observations that the drug has any peripheral nerve action in a dosage of 30 mgm. per kilo.

In considering action on the cerebral cortex and brain-stem, most of the evidence accumulated is clinical in nature. The nystagmus seen

in every case suggests a possible action within these structures. However, in the doses specified, voluntary motor power and sensation are not interrupted, thus indicating that the corticospinal tract, and indeed the final common pathway to the periphery, are not affected. Also it is notable that the waves from the cortical leads of the electroencephalogram show little change with the drug administration. Thus there is little evidence of direct action on the cerebral cortex.

With regard to the subcortical area or diencephalon, the clinical results show that myanesin has a pronounced effect on pain of central or "thalamic" origin. In addition, the beneficial results seen in diseases of the extrapyramidal system indicate that the compound has an action in this portion of the brain-stem. Moreover, the small quantity of the drug required to produce these effects suggests that its action is selective for these portions of the nervous system.

It is impossible to state as yet any opinion regarding the therapeutic value of this compound. When given intravenously, it has a shortlived beneficial effect on certain diseases of the extrapyramidal nervous system and on pain of central origin. The localized thrombophlebitis at the site of injection and the transient evidence of hæmolyzed blood in the urine seen in some patients are untoward reactions which will bear careful evaluation against the beneficial effects of the drug. It is hoped that this preliminary report will prove an impetus for further investigation of drugs of this nature.

SUMMARY

1. The beneficial effects of a new drug, myanesin, on diseases of the extrapyramidal system and on pain of central origin, are reported.

2. The general side reactions of this compound are described.

3. Experimental studies to show the action of the drug on nerve conduction, neuromuscular conduction, and synaptic transmission within the spinal cord are recorded.

We are indebted to British Drug Houses (Canada) Ltd., for the myanesin supplied in the study.

We wish to record our gratitude to Dr. W. V. Cone, Dr. H. H. Jasper and Mr. L. Henderson for their aid and valuable suggestions.

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MENTAL HYGIENE RELATED TO PSYCHOSOMATIC DISORDERS*

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IN the subject assigned to me in this symposium —"Mental Hygiene Related to Psychosomatic Disorders"—there exists the implication that preventive psychiatry might be able to prevent the development of these conditions, or at least to reduce the severity of the reactions. Psychiatry needs to be very modest in its claims in either the preventive or the therapeutic fields, but it is a tenet of psychiatry that most mental disorders are theoretically preventable, and, if this is correct, the mental element in psychosomatic disease should also be subject to inhibitory control. To some, this may appear to be only a pious hope, but when the medical profession reviews the accomplishments of the years in preventive medicine — malaria, typhoid, diphtheria, diabetes, tuberculosis will serve as a few examples—and when it asserts its faith that diseases such as cancer will ultimately be prevented, then we can do no less than assert our faith that the mental element in disease will also ultimately be brought under control.

At the present time, and for a considerable time to come, the chief task is the assembling of data concerning the relative weight of psychic and physical factors in any disease, the types of people who are prone to develop various physical and mental reactions, the determination of the degree to which psychosomatic factors are inherited or acquired. The medical journals, during and since the later war years, have carried an increasing number of articles which recognize these relationships and have attempted to evaluate their relative importance. Henderson,[1] Kalz,[2] Harrington,[3] Cathcart,[4]

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Stevenson,[5] Wolf and Wolff,[6] Strong,[7] Lewis,[8] Macdonald.[9]

During this fact-gathering phase of the development of a knowledge of psychosomatic medicine, psychiatry cannot be too dogmatic as to emotional etiology, prevention or therapy. We should be careful not to overstate psychic influences without adequate proof and adequate controls. Nevertheless, certain broad general principles are available until such time as more explicit and detailed knowledge has been ascertained.

The psychosomatic concept implies that man is a psychophysical unity viewed in two dimensions, that there is no psychic life apart from the physical, and no physical life apart from the psychic, and that personality as a whole has meaning only when related to its total environment.

The psychosomatic concept also implies that man, in his essential body-mind potentials derives from the sex cells of his parents, but also undergoes constant modification by environmental pressures of various types from the time of conception until death finally claims him.

The psychosomatic concept also suggests strongly that the general bodily conformation is inherited along with a related mental conformation. In the same way that the bull-dog is noted for his courage and determination, the fox terrier for his excitability, the spaniel for his friendliness, the setter for his shyness, the Pekinese for his querulousness, so Kretschmer[10] has shown that persons having a linear body-build tend to be more introverted, sensitive and self-conscious, whereas persons having a very thick-set body-build tend to be more extroverted, sociable and aggressive. Sheldon[11, 12] has modified and enlarged Kretschmer's concepts in greater detail, pointing out that the predominance of one of the embryonic cell layers—ectoderm, mesoderm and endoderm—is accompanied by certain rather definite mental characteristics in varying degree in each of these somatotypes.

Moreover, the psychic element in most psychosomatic disorders is an emotional element, disturbances in the emotional life being reflected in physical symptoms (peptic ulcer, digestive disorders, tachycardia, loss of weight, insomnia) whereas somatic disease invariably produces some change in the emotional reactions (instability, depression, anxiety).

In a smaller proportion of psychosomatic disorders, the intelligence is more affected than the emotions, the wide prevalence of cerebral arteriosclerosis manifesting psychically in reduction of the reasoning capacity, and often leading to profound intellectual deterioration. As this aspect of psychosomatic disorders will not be referred to again, it should be emphasized here that this condition (coupled with senile dementia) is one of our largest public health problems. It at present accounts for a very large group of sick people in the care of private practitioners and for the largest group of admissions to mental hospitals, and is the only condition of the kind which is definitely on the increase, all other common mental hospital admission groups (except alcoholism) being stationary or on the decline. The causes of cerebral arteriosclerosis are probably complex—constitutional, chemical, toxic and emotional—and as all of these cases develop gradually in their homes and while under the care of family physicians, it would appear that the medical schools, the medical profession, the insurance companies and the general public should institute extensive researches in this field. The mental hygienist has reason to think that chronic worry, tensions, economic insecurity and undue aggressiveness may be factors in the production of arteriosclerosis but he knows there are many other factors involved, calling for group research on a large scale. In the United States, the National Health Institute is to be commended for its plans to conduct research on gerontology.

Before leaving the field of intelligence, one might also suggest that mental deficiency is a psychosomatic problem. About half of this group are mentally defective because they come from mentally defective stock. This group of defective, socially valueless or socially dangerous people could be largely eliminated if sterilization were courageously employed, as is done in the province of Alberta. The remaining 50% of mental defectives come from normal stock and would also have been normal but for complications *in utero,* difficult or poor obstetrics, head injuries and infectious diseases during the first year or two of life. The prevention or reduction of mental deficiency in this group depends largely on good pre-natal care, good obstetrics and good pædiatric and social care during early life.

Reverting to the emotional component of the psychic factor it might be noted that feeling states generally have their potentials in the general somatic structure one inherits, in the quality, quantity and ratios of the various endocrine hormones, in the tensions (hypertensions and hypotensions) of smooth muscle (*e.g.*, gastric and pelvic musculature), in the hypothalamus for some of the muscular and instinctive expressions of emotion, and in the cerebral cortex for some of the finer emotional discriminations such as the appreciation of art, racial and religious attitudes, etc. The autonomic nervous system binds all these parts together and acts as a general controlling and regulating device. It should be noted, however, that this highly complicated emotional equipment only produces emotions when stimulated by events in the environment, whether that environment is the somatic environment or events external to the body-mind which may impinge on it. The use of memory or imagination to recall such environmental stimuli, can, of course, produce a similar result.

An organism is said to be in good health when all aspects of it are operating efficiently without interferences. Cannon[13] has shown that emotional disturbances immediately interfere with optimum physical health, throwing all somatic resources on the defensive, by powerful stimulation of the sympathetic division of the autonomic nervous system. Some of the somatic effects are increased perspiration, increased heart and respiratory rates, moderate elevation of blood pressure and reduction of the digestive juice output and slowing of peristalsis and all digestive functions. If the human animal used this mechanism as the lower animal does, for emergency use only when faced with danger, it would be fully as valuable to man as to the lower animal. The latter, as soon as the danger has passed, relaxes the sympathetic control in favour of ordinary vagus control, but the human animal spends so much of his time worrying, fearing and hating, that his sympathetic may be constantly or frequently over-stimulated, producing the usual somatic results and the usual interferences with good vegetative function. Hence the cardiac neuroses, gastric neuroses, insomnias and some of the arterial hypertensions. To enjoy good psychic health, or to ameliorate the psychic features in disease, it is important that emotions function smoothly and efficiently. What do we know about promoting emotional stability, equanimity and maturity?

Because emotional capacity and degree of reaction are influenced by (1) heredity; (2) somatic factors; (3) childhood training; and (4) environmental stresses; perhaps some consideration should be given to each of these four factors.

Heredity.—It has already been indicated that the general body-type may be associated with more or less specific mental characteristics. Linear parents are more likely to produce linear offspring, whereas thickset parents are more likely to produce thickset offspring. That is, there may be family physical predominants and family mental predominants. Although breeders of live-stock have long bred for desirable characteristics (bacon hogs, milk output, egg flow), the science of eugenics is still so young and so inhibited that we have little to contribute as yet in this field. It is of course highly desirable that physically fit, intellectually mature and emotionally stable persons should reproduce their kind. It is equally undesirable that the physically unfit, who have known or probably known determinants for inheritable disease should not reproduce their kind. We can only ask at this time how long it is likely to be before such persons as well as psychopathic personalities, epileptics, mental defectives and some of the mentally ill, will be prohibited from reproducing their kind.

Somatic factors.—While good physical health need not be essential to good mental health and emotional stability—there have been many remarkable exceptions—nevertheless it is much easier to be emotionally stable when the physical parts of the personality are functioning smoothly and efficiently. It is a common observation that a physically sick person, *e.g.*, suffering from influenza, is much limited in his intellectual output. He is apt to be more irritable and fretful and less able to carry responsibility. The mental aspects of the personality improve as somatic health returns. The reverse situation has previously been indicated, that emotional tensions, frustrations, anxieties, fears and hates, operating through the sympathetic nervous system, can and do seriously disrupt somatic health if long continued. It is therefore a good mental hygiene principle to keep the body in the best possible condition by all the usual methods of physical hygiene, as well

as to prevent undermining of the soma by unnecessarily prolonged emotional disharmonies.

Childhood training.—This is really too large a field to be dealt with in the time at my disposal. Only the main features of emotional control through childhood training will be attempted. In the first place it should be noted that what are often thought to be inherited familial patterns of emotional reaction are in actuality nearly always acquired. A child does not inherit the father's bad temper or the mother's moody irritability. The child absorbs these from its parents along with its mode of speech, facial mannerisms, religious prejudices and caste attitudes. This is training by imitation. It may be strengthened by precept and admonition. Or a negative conditioning may be set up if antagonisms are aroused. Poor morale in the parents makes for poor morale in the children, which makes for poor morale in the army, or in school, or in occupational adjustments. If good morale, high courage and optimism are to be inculcated in the young, the parents must set the example.

Parents need always to remember that although the young child needs nurture, protection and education, the older child needs to be trained to be self-reliant and independent and encouraged to prepare himself for emancipation from the home and the assumption of his rightful share of the world's work.

As a part of his training the developing child needs to learn how to deal realistically and maturely with disappointment, failure and defeat. Not by over-solicitousness and over-protection from the parents, not by sulkiness and temper tantrums, but by the calm acceptance of the inevitable, the making the best of a bad job, the learning to improve his techniques—these are the beginnings of a philosophy of life and an immunization for the greater difficulties, disappointments and failures he may encounter in his maturer years. The child needs to be trained in four fundamental securities, first of all in himself, then in his family and later affectionate relationships, next in his fellows, which involves not only social integration but economic integration as well, and finally, he needs security in the cosmos, an acceptance of and assurance in the reign of law in the world.

This brief outline suggests training not only in self-reliance and social reliance but also sound sex education as a preparation for maturity and a sound religious education so that he may feel at home in the universe.

The intensity of the emotional stress can often be modified by muscular relaxation. Every emotion produces visceral effects and commonly effects in the voluntary musculature. The angry person becomes muscularly tense and aggressive, the depressed person becomes physically collapsed, the fearful person becomes agitated and restless, perhaps panic-stricken. It is not necessary to give physical expression to a mood in order to get rid of it, as is sometimes advocated. The rational procedure is to imitate the cat or dog, which has been through a tense emotional situation. Relax, relax muscularly, relax mentally. The somatic effects quickly disappear as the physical relaxation replaces the physical and visceral tension. The advice often given to young boys to count to 10 before starting a fight is based on this principle, for if the lad can keep muscularly relaxed enough to count to 10 he is not likely to become impulsively involved in an unnecessary fight.

Environmental stresses.—One is thinking here of the frustrations, assaults and all other mental and physical factors from adolescence onwards which ordinarily stimulate unfavourable emotional reactions. Life cannot be lived in a vacuum, nor can it be lived in an environment free from stress and strain. Nor should it be. There need to be problems, difficulties and stresses to develop and strengthen personality. An environment would be unhealthful without them, but it is equally unhealthful to be overloaded with them. The strongest ship cannot withstand constant storms without damage, nor can the strongest personality. But if one is well prepared for life and its stresses he may handle serious difficulties satisfactorily and should learn to avoid those which might overwhelm him. This proposition involves some knowledge of escape psychology, the various types of escape, constructive and destructive. The constructive escapes are those which permit temporary escape from possibly disabling stresses by the use of sleep, friendships, books, the arts, recreations, hobbies and humour. The destructive or psychopathic escapes are those which offer the escape principle via alcoholism, narcotic drugs, suicide, pathological daydreaming and some forms of mental illness.

One should not feel however that life stresses are merely to be avoided. One gains agility but may not gain mental strength thereby. One should learn to deal effectively with one's environment, to change it and mould it to become sufficiently congenial for his best work. In doing so, one learns and practises the art of sublimation which is the mark of the mentally healthy, mature and civilized human being. By this is meant the willing acceptance of life with such limitations as it imposes, and a refining of purely selfish goals and ambitions, often unethical or unobtainable, into objectives which are ethical, are within his capacity for achievement and which have value to society as a whole.

As a footnote to the discussion of environmental influences or psychosomatic health, it should also be kept in mind that many people are handicapped by negative suggestions, the opposite of the positive healthful suggestions which are often a part of psychotherapy. Fear is not necessarily evil, any more than pain is necessarily evil. There are intelligent useful fears which help us to preserve health and life. But it should be asked if the present extreme emphasis on public education in the fields of cancer and heart disease is a psychologically sound approach. One can only wonder how many people are developing neurotic phobias about cancer and heart disease, or diminishing their feelings of well-being and their social and domestic efficiency by a morbid preoccupation about their physical health, induced by overemphasis on the potential dangers of contracting such conditions. Might a better approach not be the emphasis on the general need for a periodic health examination, in the interests of keeping the person well, leaving it to the physician to be on the lookout for health hazards, rather than the building up of specific fears and morbid preoccupations in the mind of the average person. This phase of negative mental hygiene might require more consideration.

As indicated at the beginning of this paper, the statements here made are tentative and general but are considered to have some significance in the prevention of psychosomatic disorders.

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INTERCOSTAL NERVE BLOCK IN THE TREATMENT AND PREVENTION OF POSTOPERATIVE ATELECTASIS

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EXCESSIVE mucous secretion and minor or major pulmonary atelectasis following surgical operations on the chest or abdomen have proved a problem to the general surgeon for many years. Whilst it is well known that this complication is most apt to occur following upper abdominal procedures, it may supervene after any surgical intervention.

The prophylaxis and treatment of this complication has been haphazard in the majority of centres. Despite this fact, the incidence of serious collapse following operation has progressively declined in recent years, as a result of non-specific efforts to prevent its occurrence.

ETIOLOGY

A great deal of research has been done to determine the physiopathological background of this entity. It is well known that the immediate causes of the massive collapse are: firstly, a marked increase in the amount of mucus secreted by the bronchial tree; secondly, the advent of spasm of the bronchi and bronchioles; and thirdly, a decrease in the respiratory excursion, due either to heavy sedation, or to limitation by pain.

However, these causes in turn are the result of initiating factors. This was established by the work of De Takats, Fenn and Jenkinson[1] and some of their conclusions have been recently and independently reached by Brewer and Burbank.[2] They point out that in intrathoracic wounds, there is definite trauma to

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intercostal nerves, and this trauma sets up reflex diminution of respiratory excursion, increase in mucous secretion, and bronchiolar spasm. Furthermore, the latter group showed that in cases of trauma of this type, direct block of the injured nerve and similar block of the two or three adjacent nerves will interrupt these reflexes and markedly reduce pulmonary complications.

It seems reasonable, therefore, to assume that in many cases of atelectasis the primary etiological factor is trauma to these nerves, and this would apply as much to those intercostal nerves which supply the abdominal wall as to those innervating the thorax itself. Whereas no experimental verification of this inference has been made, it has been applied clinically with good results, as will be shown below.

TREATMENT

Treatment is divided into prophylactic and active stages.

Prophylactic treatment. — Preoperative instruction in proper deep breathing is given by well trained physiotherapists. This is a point which has long been appreciated in many European Clinics but which, on this continent, due both to the lack of adequately trained personnel, and to the rather disinterested attitude of the surgeon, has not been properly developed.

The immediate pre- and post-operative care of the patient is placed in the hands of the anæsthetist. In our hospital elective surgery is not performed on patients while they are suffering from acute pulmonary or upper respiratory infections. Those who have chronic respiratory infections are given deep breathing exercises preoperatively, advised to clear their chest as much as possible before coming to the operating room, and also to eliminate smoking for a day or two preceding operation. Preoperative sedation is decreased and it has been our conclusion that barbiturates should not be given before, during, or after surgery. Codeine or demerol are used as sedatives and analgesics in preference to morphine. When general anæsthesia is used, these patients are always intubated, and at the end of the surgical procedure, the tracheo-bronchial tree is carefully aspirated of all secretions. Deep breathing exercises and coughing are encouraged as soon as the patient is conscious, and he is encouraged to get up and about as soon as possible.

ACTIVE TREATMENT

This is instituted at the first sign of excessive mucous secretion by the patient, and if the process continues to develop in severity, one or more of the procedures listed below are instituted. (1) Continuous tincture benzoin compound steam inhalations are given from a kettle at his bedside, or in more obstinate cases, intermittent inhalations are given with the patient in a croup tent. (2) The supervision of his deep breathing exercises by the physiotherapy department is increased from the routine once or twice, to four or five times daily. (3) Inhalation of 10% carbon dioxide in oxygen for ten minutes every hour appears to be more effective in some patients than the tincture benzoin compound. In the more severe cases, the two have been advantageously combined.

Most patients respond well to this treatment, but progress may be slow and their co-operation and good will are severely taxed. Despite these methods severe bronchitis and collapse occasionally do occur, especially in those who are not completely co-operative.

In these few, the usual routine has been to do an intratracheal aspiration, either by passing a nasal catheter into the trachea and applying suction, or by direct bronchoscopic examination and aspiration.

Based on the work and results of Brewer and Burbank, we have, in a series of transthoracic vagotomies, blocked each of the three or four intercostal nerves above and below as well as those involved in the incision, with 5 c.c. of 2% procaine. By comparing these cases with those previously done, it was found that their postoperative course, from the pulmonary aspect at least, was much smoother. None of them developed any signs of excess mucous secretion, collapse or even excessive pleural effusion within the first 72 hours after operation. If signs of such complications did become evident at the end of this period, they were quickly relieved by a repetition of the block of the same nerves.

It was then decided to use this procedure in postoperative abdominal cases threatening to develop atelectasis. The use of intercostal block had been previously described,[2] but its value had been assumed to be the relief of incisional pain, allowing the patient to breath more deeply, to expand all alveoli, and to cough without discomfort. It was realized now that the blocking of these nerves stopped a vicious reflex which otherwise would have maintained the collapse

despite all other therapeutic efforts, and that the reflex block was effective for 24 hours or longer, as compared to pain relief of only 3 or 4 hours. Consequently this form of treatment should have a definite place in such cases.

With this procedure, the relief afforded was most dramatic. The incisional pain was immediately diminished, although not necessarily obliterated. The respiratory excursion was increased and the patients were able to co-operate fully in their physiotherapeutic exercises, in their prophylactic inhalations and in coughing. The loose mucus in the trachea and bronchi was usually coughed up within three or four hours. Most important, however, there was no return to the excessive mucous secretion for a period of 18 to 24 hours. In most patients it has been found necessary to repeat the block at daily intervals for the first two or three days postoperatively.

The procedure is easily done and is practically painless. The patient's own requests for subsequent blocks are indications of the symptomatic relief given. The decrease in pulmonary morbidity is the true gauge of the actual value of this treatment.

While we have not yet had occasion to utilize this procedure prophylactically in any except the thoracic group, we have considered investigating its use in certain abdominal cases. It is known that there are groups of patients who are especially prone to postoperative atelectasis following abdominal operation. These include those over 40, the very obese, bronchitics, and those in whom there is a lowering of pain threshold. It is felt that when patients of this type are encountered, the blocking of all the intercostal nerves involved in the incision immediately after the completion of the operation, and a repetition of these blocks for two or three days after operation will be of great benefit.

SUMMARY

1. Etiology of atelectasis is briefly reviewed.

2. Proper prophylactic treatment to avoid this condition is stressed.

3. The usual measures of treatment are briefly outlined.

4. A report on the use of intercostal block in the prevention and treatment of atelectasis is given.

5. The use of intercostal block as a prophylactic means in preventing postoperative atelectasis is suggested.

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THE DIFFERENTIAL DIAGNOSIS OF CHRONIC LOWER ABDOMINAL PAIN IN THE ADULT FEMALE*

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THERE are still too many unnecessary abdomino-pelvic operations being performed on women. It appears that several reasons may be found for this deplorable situation. Among them are: lack of surgical conscience; ignorance of gynæcological physiology and pathology; inadequate appraisal of the psychological and socio-ecomonic aspects of pelvic complaints; incomplete or hasty investigation with inaccurate diagnosis.

No other region of the human body has a higher incidence of "repeat" operations than the female pelvis, mute evidence of the peculiarly unsuccessful nature of many primary procedures. The number of patients seen yearly with one or more abdominal scars and without relief from their original complaints is appalling. This must not be construed as a blanket denunciation of female pelvic surgery. Gynæcological operations, as a class, performed for sane and scientific indications must be conceded as amongst the most satisfactory and successful in surgery. The kernel of the problem lies in the selection of suitable cases for surgery from the total group of women seen with gynæcological complaints. Lower abdominal pain seems to be the single most important symptom which leads to surgical intervention. Accordingly, a review of the causes of such pain should be timely.

All cases with chronic pain can be divided into two large groups: (1) those with recognizable or detectable organic pelvic lesions; and (2) those with apparently normal pelvic organs.

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ORGANIC PELVIC LESIONS

Where definite pathological lesions are discovered on pelvic examination the problem is greatly simplified, appropriate treatment being obvious. It must be emphasized, however, that the mere presence of a pelvic abnormality is not proof that the pain is causally related thereto. One must establish the etiological relationship especially when surgery is contemplated. A familiar example is the too frequent suspension of the retroverted uterus without first proving to the patient's and one's own satisfaction that such displacement *is* the cause of persistent pain. Surgery in the presence of chronic symptoms is always elective, and time is available for careful investigation, and if desired, a trial of conservative therapy. This, of course, is in contrast to acute abdominal pain where the diagnosis is usually more readily made and in which surgical exploration is justifiable, the cause and treatment being at once established.

Having satisfied oneself regarding the presence or absence of gross pelvic lesions, one must next assess the intensity of the pain complained of. Many people use the term "pain" in a loose fashion, and unless the physician be wary, he may easily overestimate the suffering of the patient. Slight or occasional pressure of "gas," aching muscle discomfort, fleeting twinges, are often described by patients as "pain". Nowhere is it more important to know or learn something of her background, personality, and environment. The degree of discomfort or pain is best evaluated objectively—its effect on sleep, work, and recreation—in how far does it interfere with her normal life activities. This may require prolonged observation, interrogation of relatives, friends, and employers, together with repeated interviews with the patient herself.

NO LESION DETECTABLE

Speaking generally, chronic pain in the young girl and in the aged woman means organic trouble; during maturity, however, pain may be of psychogenic origin. The adult woman is exposed to a multitude of emotional and nervous stresses at puberty, during menstruation, pregnancy, and at the menopause, which may be projected to the pelvis as pain. Fear and frustration are two important psychological causes of somatic disorder. The chief frustrations result from failure to marry and failure to conceive. The highest and holiest aspiration of the normal adult woman is reproduction, even though denied or concealed. The chief fears are of: (1) malignancy; (2) pregnancy; (3) sterility; (4) loss of femininity; (5) venereal infection; (6) loss of libido. In my practice, any patient who has pelvic symptoms without obvious pelvic abnormality to fully account for them at once suggests one of the above-mentioned fears or frustrations, and leads to a review of the history with special attention to the reason for consultation. It is surprising how often the patient will admit she came not because of pain, as first declared, but from fear of cancer, or of being pregnant, etc. Genuine interest, thorough investigation, and strong reassurance, not surgery, cure these patients.

Patients with real organic disease sooner or later reveal definite objective changes on examination. We must, of course, strive to unearth such changes before they become too advanced. Women with real disease and without neurotic tendency do not have multiple, vague, and varying complaints; on the contrary, their symptoms are constant, fixed, progressive, and repeatedly and invariably projected to the same region and described in the same unalterable terms.

It is not always easy even for the experienced gynæcologist to pass a pelvis as normal. Any beginner can detect a large fibroid or ovarian cyst; more practice is required to exclude abnormality with confidence. Pelvic pain in the absence of gross pelvic lesions may be: (1) of psychosomatic origin; (2) due to minimal pelvic lesions undetectable on examination (*e.g.*, early endometriosis); or (3) of extra-pelvic origin, from abdominal parietes, urinary tract, spine, etc. This is the group in which unjustifiable surgery is most often performed.

TABLE I.

		Pain
1. Cervicitis, parametritis	20	12
2. Displacements	18	8
3. Trichomoniasis	16	8
4. Menstrual disorders, sterility, etc.	16	4
5. Fibroids	11	5
6. Endometriosis	5	4
7. Chronic adnexal inflammation	4	4
8. Miscellany (backache, pruritus vulvæ, ovarian cysts, etc.)	10	4
	100	

Lower abdominal pain present in 49%
Previous abdominal operation in 40%
Surgery advised in 24%

The records of 100 consecutive gynæcological cases seen in private practice were analyzed (Table I) to determine the relative incidence of various pelvic lesions, the number who had had previous abdominal operations, and the number who were advised to have a surgical operation. These cases are unselected except that the following were excluded; all acute cases; malignancy; cases not gynæcological in nature and who were referred elsewhere. In the table the chief lesion felt responsible for symptoms is recorded; obviously gynæcological lesions are often multiple but such are omitted for sake of clarity.

The ages ranged from 15 to 63; 69 were parous, 31 nulliparous. Approximately 50% of the group complained of lower abdominal pain as one of their symptoms. Forty per cent of all patients seen had had a previous abdominal operation, the majority of these being appendectomy with or without pelvic surgery. Operation to remove or correct pelvic disease was advised in 24%. It is admitted that the group is small, but at least it gives one some idea of the nature and incidence of pelvic disease in an average gynæcological practice.

It is impossible in the time available to describe all lesions which may possibly cause lower abdominal pain in women. I propose to select a few of the more important ones, indicating their chief characteristics clinically.

1. *Chronic parametritis.*—In my opinion this is one of the commonest yet most frequently overlooked causes of chronic abdomino-pelvic pain in parous women. Many patients with this condition are subjected to abdominal operations and of course without relief as it is extraperitoneal in location and thus beyond the reach of an intra-peritoneal approach. Following cervical injury and infection during labour, inflammation of varying degrees occurs in the paracervical and the uterosacral areas. This may or may not cause recognizable signs in the puerperium, but sooner or later terminates in fibrosis, and fixation of the connective supporting tissues of the pelvis. As it is usually asymmetrical, movement of the uterus during general body motion places unequal stress on the uterine supports and pain results. This pain dates from a labour or soon after, is aggravated by work and exertion, menstruation, coitus, and is ameliorated by rest and heat, and cured by the atrophy of the menopause. The discomfort varies from a mild intermittent ache across the lower abdomen, often more in one lower quadrant to quite severe constant pain. Pelvic examination if done hastily and without thought of this possibility may give entirely negative results. The uterus may be normal in position, size, shape, etc., and the adnexa not palpably affected. However, wide lateral or vertical movement of the cervix by the vaginal fingers will evoke severe pain similar to the patient's complaint. If the uterosacrals are predominantly affected forcibly hooking the cervix forwards is effective in eliciting the painful response. Rectal or rectovaginal examination is helpful in localizing the lesion and may reveal thickening, tenderness, and shortening of the parametrium involved. The corresponding lateral fornix is often narrowed or obliterated by a tense, tender scar, but this is found in a minority. Because the tenderness is in the fornix or posteriorly such cases are often diagnosed as due to "ovarian trouble" and operation mistakenly advised. Again some are relegated to the "neurotic" class as cursory examination discloses what appears to be normal pelvic organs. Sacral backache, dyspareunia, dysmenorrhœa, and the rarity of prolapse are associated manifestations.

2. *Chronic adnexal inflammation.*—This is of course a common cause of persistent or recurring pelvic pain but I am inclined to think it is over- rather than under-diagnosed in this part of the world at least. With continuing improvement in the treatment of acute gonorrhœa its incidence will progressively fall. The history of previous lower genital infection, its occurrence in the nulliparous as well as the parous woman, the bilateral and posterior location of tender fixed masses at a higher pelvic level and the tendency to episodes of acute exacerbation are helpful in differentiating it from the parametritis syndrome.

3. *Endometriosis.*—This is an increasingly recognized cause of chronic pain. Its predominance in nulliparous women, the long progressive history of dysmenorrhœa and abdominal soreness postmenstrually, and the distinct pelvic findings serve to distinguish it from parametritic lesions. The absence of previous instrumentation, pregnancy, and gonorrhœa is of further help and points to either endometriosis or tuberculous salpingitis.

4. *Displacements of the uterus.*—These may lie at the root of chronic pelvic discomfort interpreted as pain by the patient. *Early* prolapse

of the uterus and the postpartum retroversion are the chief examples in this class. Advanced prolapse seldom causes abdominal pain. Retroversion uncomplicated by restriction of ovarian mobility or by some descensus is usually symptomless. Diagnosis is relatively easy, and the test of replacement by pessary for a reasonable time must precede any decision to operate.

5. *Pelvic neoplasms.*—New growths such as fibroids, ovarian cysts, and malignancy do produce discomfort or even pain in some instances, but by and large, this is not the predominant symptom and in any case, diagnosis is usually apparent.

6. *Follicular and corpus luteum cysts of the ovary.*—These lesions are non-neoplastic and in the majority of cases disappear spontaneously in a few weeks or months. They are of endocrine origin with failure of ovulation and subsequent atresia. A solitary distension cyst may reach the size of a tangerine orange. Apart from occasional quadrant twinges or mild aching especially premenstrually, they are symptomless. Surgery is unnecessary.

In a few, *pain* is a more definite symptom and may be persistent and troublesome. This seems to occur if the ovary is fixed by adhesions or by retrodisplacement. A freely movable ovary even if studded with follicular cysts is generally painless.

The healthy ovary on bimanual compression is *normally* tender. Failure to realize this simple fact has been the reason for many a faulty diagnosis and even more faulty operations with removal of the organ. If the ovary were a single rather than a bilateral organ; if it were at the surface of the body like the testis where its owner would be more conscious of its loss, or if it contained vital tissue like the islets of Langerhans, fewer normal ovaries would be daily sacrificed by those endowed with more of the enthusiasm of the operator and less of the conscience of the surgeon.

7. *Chronic ectopic pregnancy.*—Atlee[1] has recently well described this condition. If one always keeps the possibility of ectopic pregnancy in mind, fewer cases will be overlooked. Given a gynæcological case with atypical manifestations in a woman of reproductive age always suspect an ectopic (Kelly). I would again lay emphasis especially on some alteration in the menstrual pattern, persistent pain with exacerbations, anæmia, pain on moving the cervix, and a unilateral or posterior mass of variable consistency and of almost invariable tenderness.

8. *Pelvic hyperesthesia.* — There are some women, usually of neurotic type, with persistent pelvic pain in whom the pelvis is normal, except for a diffuse oversensitivity to palpation. Vestibule, vagina, vault, cervix, adnexa are all unduly sensitive and yet no localized lesion is found. Frigidity, dyspareunia, masturbation, and sterility are often associated. The generalized tenderness without objective findings excludes the other causes mentioned.

9. *Pelvic variococele.*—It is conceivable though difficult of proof that some cases of pelvic discomfort result from a broad ligament varicocele. Such a lesion is frequently seen at operation associated with fibroids, chronic adnexal disease and retroflexion. Whether it occurs as a separate entity and whether it is ever a cause of pain *per se* the writer is unable to determine.

10. *"Ovarian neuralgia".*—This is a formerly frequently diagnosed condition whose existence may be seriously doubted. Most cases prove to be chronic parametritis, salpingitis, endometriosis, incipient prolapse, or fibrositis.

11. *Chronic trichomoniasis.* — This causes suprapubic pain in 50% of cases at some stage, especially where the vaginal vault bears the brunt of the inflammation.

12. *Chronic cervicitis.* — This can produce suprapubic discomfort and bearing-down sensations, notably where hypertrophy is a feature.

13. *Fibrositis of abdominal wall.*—Many may doubt or deny the existence of this condition. However, I am convinced that some cases of chronic pain arise in the abdominal parietes rather than in the viscera. The pain is referred to a fairly small area often near a scar or in the rectus muscle. It is aggravated by working, walking, sneezing, etc., and relieved by rest and heat. There is no relation to any of the body functions including menstruation. The patient is asked to point with one or two fingers to the locus of pain. Pressure is then made thereon by the examiner with the parietes relaxed, then tensed. Tension is evoked by directing the patient to raise her shoulders or the extended legs. If pain is of parietal origin it is accentuated by pressure during tension; if intra-abdominal, tenderness is lessened or abolished. Some of my colleagues are similarly impressed with the frequency of

this phenomenon, but none dares proffer a pathological explanation.

Of extra-pelvic causes of pain in women, I can only mention a gassy, ptotic cæcum; irritable colon syndrome; diverticulitis, urologic lesions, and anterior projection of lumbosacral strain. Of these the irritable colon occurs usually in the high-strung, dynamic, intelligent, undernourished woman, whose domestic and social responsibilities overtax a nervous system possessing more than its usual quantity of *drive* with less than its usual quantity of stability. She is generally unmarried or nulliparous, and is subject to episodes of abdominal pain and soreness provoked by undue fatigue, frustration, or emotion. Much gas and mucus are complained of and examination discloses tenderness along part or all of the colon. Bloating, belching, anorexia, fatigability, dysmenorrhœa are all common. Pelvivc examination is negative. There should be no excuse for abdominal surgery in these cases, yet many are the victims.

Persistent postoperative pain.—This is one of the most troublesome types of chronic pain met with in practice. It may be due, of course, to one of the many lesions already mentioned which have been missed at operation or of such nature that surgery is ineffectual in their cure. In these cases the pain of necessity antedates the operation. On the other hand, the patient may genuinely date the onset to the operation or soon thereafter. We believe the commonest causes for this type of pain are: (1) Fibrositis of abdominal wall. Tender scars of parietes, painful nerve stumps? (2) Round ligament tension and tenderness after suspension procedures and subtotal hysterectomy. (3) Adhesions fixing an ovary to the cervical stump or pelvic floor with or without follicular cysts. (4) Intestinal and omental adhesions to parietal or uterine scars (after Cæsarean, myomectomy, etc.). (5) Postoperative endometriosis. (6) Postoperative retroversion with adhesions following bilateral salpingectomy for large tubal masses (Bonney).[2] (7) Continued "pelvic consciousness".

Bonney[3] wisely states: "The more ill a patient has been before a successful operation, the sooner, other things being equal, will she be gratified with its results. But after any major operation it is well to impress upon the patient that, even if she makes what is considered a normal convalescence, she will not appreciate its full benefit until the best part of twelve months has elapsed."

Chronic appendicitis.—This is a very controversial topic. Personally I am at a loss to make the diagnosis clinically, and in the light of the large number of unsuccessful appendectomies performed for the so-called "chronic appendix", one is entitled to be dubious of its existence.

With a clear history of acute appendicitis which has resolved spontaneously, repeated subsequent episodes of a milder nature undoubtedly occur, but this may be called recurrent appendicitis and is a well recognized entity. Again, some agree that chronic appendicular lesions, *e.g.*, fæcaliths, strictures, adhesions and kinks, can produce a type of dyspepsia with umbilical or epigastric pain due perhaps to pylorospasm and relieved by appendectomy. But we refer here to the diagnosis of chronic appendicitis made solely on the presence of constant or intermittent pain in the right lower quadrant. It is our experience that but few cases of chronic right lower quadrant pain are cured by simple appendectomy. Many such patients have a large, mobile, atonic cæcum which slides down over the pelvic brim on standing and which becomes overdistended with flatus especially when constipation coexists. Chronic nagging or aching discomfort in the right lower quadrant occurring predominantly in the tall, asthenic, visceroptotic woman, worse on exertion and fatigue with long standing and aggravated by constipation, suggests this condition to us. Explanation, regulation of the bowels, abdominal support, and increasing the weight helps these people more than appendectomy.

It should be unnecessary to stress the great importance of *urological study* in all patients whose complaint is chronic abdomino-pelvic pain. *Rectal* and *colon lesions*—malignancy and diverticulitis especially—must be looked for in every case, no matter what the pelvic findings. Useful physical aids are: (1) full blood count; (2) sedimentation rate; (3) intravenous and retrograde urography; (4) sigmoidoscopy and barium enema.

SUMMARY

1. Operation in the absence of detectable pelvic lesions is seldom justifiable where chronic pain is the presenting complaint. Surgery in

such cases is meddlesome, ineffective, often mutilating and may lead to a career of repeated operative insults.

2. Operation in the presence of obvious abnormality must be undertaken with caution and preceded by intensive pelvic study and observation. Not every pelvic deviation from normal is *the* cause of the patient's pain.

3. Due regard for the environmental and psychic factors in the patient's life must always be made.

4. Pelvic surgery for prolapse, fibroids, ovarian tumours, ectopic pregnancy, malignancy, gives excellent results; pelvic surgery for chronic pain alone is seldom indicated and is often disappointing.

5. Chronic parametritis, adnexitis, endometriosis, abdominal wall fibrositis, irritable colon, and some displacements are the most frequent organic causes of chronic abdominopelvic pain in the adult woman.

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RÉSUMÉ

Il est rarement justifiable d'opérer sur la seule foi de douleurs chroniques lorsqu'il n'existe pas de lésions pelviennes objectives. En pareil cas, la chirurgie fait plus souvent de mal que de bien. En présence d'anormalités évidentes, l'opération devra encore être faite avec prudence et après étude soignée et observation du syndrôme présenté. On devra tenir compte des facteurs dûs au psychisme et au milieu de la malade. La chirurgie est indiquée dans les cas de prolapsus, de fibrômes, de tumeurs ovariennes, de grossesse ectopique et de cancer; elle l'est rarement dans le cas de douleur chronique à titre de symptôme unique. Les causes les plus fréquentes de ces douleurs sont la paramétrite chronique, l'annexite, l'endométriose, la fibrosite de la paroi abdominale et l'irritabilité du côlon.

JEAN SAUCIER

A man may do very well with a very little knowledge, and scarce be found out, in mixed company; everybody is so much more ready to produce his own, than to call for a display of your acquisitions. But in a *tête-à-tête* there is no shuffling. The truth will out.—Charles Lamb.

SUPPORTIVE TREATMENT DURING ANÆSTHESIA*

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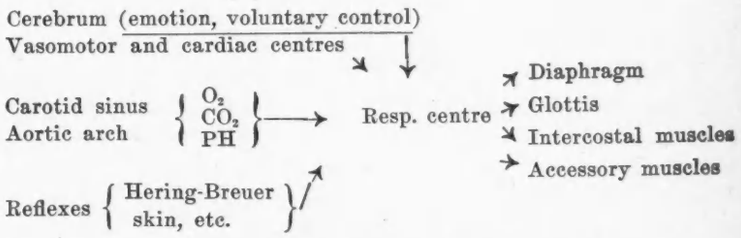
DURING the past forty years, the advances of the sciences of physiology and pharmacology and the impetus provided by World Wars I and II to their clinical applications have made the rôle of the anæsthetist increasingly larger and have widened his scope. On the one hand, surgical techniques have become more demanding of the anæsthetist; on the other, the anæsthetist has been able to provide more satisfactory working conditions for the surgeon and has made surgery safer and less terrifying for the patient. The surgeon-anæsthetist relationship has also changed. The anæsthetist has assumed the rôle of a specialized consultant. The surgeon has become more and more dependent upon the judgment of his anæsthetist for pre- and post-operative advice, in the treatment of his patient. The surgeon, however, still relies upon his anæsthetist chiefly for his skill in the administration of the anæsthetic and for his supportive treatment during the anæsthetic period. It is with this latter phase of anæsthetic practice that this paper deals.

Respiration.—Respiratory movements should at all times be under the direct observation of the anæsthetist. The following diagram illustrates the factors operating in the control of respiratory movements.

Control of respiration.—



It is most important that the anæsthetist realize that these factors operate chiefly through the respiratory centre. It is the respiratory centre that sorts out messages from the stimulated areas and sends the proper response to diaphragm and intercostal muscles or to the accessory muscles of respiration, to adjacent vital centres or peripheral structures such as muscles controlling movements of the vocal cords.

* Lack of space has made it necessary to omit certain portions of this paper.

The mechanical control of normal respiration depends upon a free airway and intact thorax. The vital capacity and tidal air are limiting factors.

The skin.—The observations of skin colour and temperature provide information regarding the physiology of circulation and respiration as discussed above and heat regulation discussed in the following section. The chief concern of the anæsthetist is the appearance of cyanosis. Cyanosis depends upon the presence of 5 gm. % reduced hæmoglobin in the blood stream. This corresponds to 6.7 volume % oxygen unsaturation in capillary blood which is the threshold for cyanosis (normally arterial blood is 5%, capillary blood 3.5% unsaturated).

Other changes in colour are related to changes in the state of the underlying blood vessels. In the presence of adequate oxygenation, pallor is due to vaso-constriction, redness to vaso-dilatation.

Heat regulation.—The control of body heat appears to reside in a thermo-regulatory centre of the hypothalamus. Heat production depends mainly upon metabolism and muscular action. Normal control depends upon the action of the thermo-regulatory centre influenced by pituitary, thyroid and adrenal hormones and environmental stimuli. The principle adjustments in heat regulation depend upon: (1) Redistribution of blood. (2) Variations in blood volume. (3) Variations in circulation rate.

The chief concern of the anæsthetist with regard to heat regulation during anæsthesia is its loss. In the normal, heat loss depends upon the following: (1) Radiation, convection, conduction—(95%). (2) Respiration—lungs, skin —vaporization. (3) Heat loss in raising temperature of inspired air to body temperature.

Nervous system.—The mental state of the patient is important to the anæsthetist in its effects upon the other systems of the body. The effects of emotion upon circulation and respiration have been outlined above. Emotion also plays a part in the production of "shock". The various reflexes of the cranial nerves interpreted as the signs of anæsthesia are well known and need no mention here. The effect of anoxia on the cells of various nervous tissues is important to the anæsthetist. The life of the cells of the cerebral cortex is 5 to 8 minutes when deprived of oxygen; that of the cerebellar cells is 13 minutes; medullary centres 20 to 30 minutes; cells of the spinal cord 45 to 60 minutes; sympathetic ganglionic cells 3 to 3½ hrs. However, nervous tissue is sensitive to lesser degrees of anoxia and permanent damage or damage followed later by death may result from the supply of oxygen in too small amounts. On the other hand, there is no evidence of damage due to oxygen poisoning following the breathing of 100% O_2 for 6 to 8 hours.

Summary of the Effects of Common Anæsthetic Agents

We have selected three examples of agents providing general anæsthesia which are in common use, namely ether, a volatile anæsthetic; cyclopropane, a pure gas; and pentothal sodium, an intravenous agent. We have listed their effects observed when used for surgical anæsthesia and have attempted to summarize the underlying physiology.

1. *Ether.*—The skin of the patient is flushed and moist, muscular relaxation is good. Respiratory movements are increased and the Hering-Breuer reflex is intact. The systolic blood pressure is slightly raised or unchanged. The diastolic has probably fallen at first and has remained at its low level. The heart rate is normal and the volume of the pulse is increased.

Underlying factors.—Cardiac output has been increased due to increased venous return in the early anæsthesia. There has been no direct effect on the heart muscle. The peripheral resistance is lowered due to peripheral vaso-dilatation. There is no direct effect on the vasomotor centre. Blood volume is decreased with moderate hæmoconcentration and consequent increased viscosity. The carotid sinus and aortic reflexes have been depressed. The summation of these effects has resulted in the observed blood pressure and pulse rate remaining constant.

The respiratory centre is stimulated, CO_2 of blood in increased and O_2 slightly lowered. The metabolic rate is lowered and blood sugar increased 100 to 200%. Body heat is lost in considerable amounts through the skin by peripheral vaso-dilatation and loss of heat and water by vaporization from the lung due to the irritative effects of the vapor. Nervous tissue is depressed throughout and the lower pathways blocked.

2. *Cyclopropane.*—The skin colour is pink and its surface is warm and dry. In the cut skin surface venous blood is indistinguishable from

arterial. Muscular relaxation is moderately good. Respiratory movements are shallow and slow. Blood pressure is raised or little changed. The pulse is slow and full with occasional arrhythmia (ventricular extra-systoles).

The peripheral resistance is lowered due to peripheral vaso-dilatation. Cardiac output is increased due to lengthened diastole and increased filling time. The venous pressure is unchanged. The summation of these effects maintains the blood pressure. However, there is a direct effect of the agent upon the heart with the resulting changes observed in the pulse.

The respiratory centre is depressed and the CO_2 content of the blood is raised. Waters and lately Dripps have suggested that the sudden immediate blood pressure fall sometimes encountered on discontinuing the anæsthetic may be accounted for by the high threshold of CO_2 stimulation at which the respiratory centre is working during the anæsthetic period. The O_2 content of arterial and venous blood is increased due to its supply in high concentrations with the anæsthetic. Bronchial musculature is not relaxed. Nervous tissue is not depressed to the same extent as with ether and recovery is quicker. Blood sugar is slightly raised.

3. *Pentothal sodium.*—The patient is flushed; the skin is warm and dry; the pulse is fast with small volume; the blood pressure has fallen. Respiration is shallow although there may be little change in rate. An occasional muscular twitch may occur. If the pharyngeal airway is inserted it usually provokes spasm. Muscular relaxation is poor.

Underlying factors.—The cerebral cortex is depressed; respiratory and vaso-motor centres are depressed as is also the carotid sinus reflex. The minute volume exchange of the lung is decreased. Metabolism is depressed with decreased O_2 consumption and without increase in blood CO_2. There is a peripheral dilatation which when added to the picture of general depression probably accounts for the constant blood pressure fall. Pharyngeal reflexes are not abolished and may be hyperactive.

Spinal anæsthesia.—When a locally acting anæsthetic agent is introduced into the subarachnoid space there follows a more or less complete paralysis over the area supplied by the nerve roots involved. These effects may be grouped as (*a*) immediate or direct and (*b*) secondary or indirect.

In the uncomplicated case the direct effects are: sensory loss; sympathetic paralysis; motor paralysis.

Indirect effects are secondary to the direct actions of the drug and may be summarized as follows: (1) Fall in blood pressure due to, (*a*) vaso-dilatation; (*b*) decreased venous return due to muscular paralysis, sympathetic paralysis and decreased chest movements; (*c*) decreased cardiac output (10%). (2) Decreased heart rate due to depression of cardio-accelerator nerves (sympathetic). (3) Respiratory centre is depressed during the general circulatory depression. (4) Vagus activity is intact (no sympathetic inhibitory effect). (5) Respiration is increased secondary to intercostal paralysis. (6) Fall in body temperature (fibres from hypothalamus interrupted). (7) Skin temperature rises in the anæsthetized area.

With high spinal anæsthesia, vasomotor fibres are paralyzed (D_2) and the carotid sinus is depressed (D_4).

THE EFFECTS OF THE OPERATIVE PROCEDURE UPON THE PATIENT

There appears to be no operative procedure which is without the hazard of some degree of surgical shock. Whether the cause is attributed to fluid loss, heat loss, the ill-defined "traumatic shock", oxygen deficit or to all or several of these factors, the picture of shock remains the same. The clinical signs of shock occurring during anæsthesia are pallor, sweating, fall in skin temperature, fall in blood pressure, rising pulse rate, irregular respiratory movements and beginning dilatation of the pupil.

The above brief picture may be altered by such factors as type of anæsthesia, operative area involved, environmental changes, or constitutional factors in the patient. So far as the anæsthetist is concerned, he usually must base his diagnosis of shock on two clinical signs, rising pulse and the falling blood pressure. Of the two, the former is the more constant finding.

Whatever the causation of surgical shock, the essential change appears to be a reduction in the total volume of circulating blood. That shock may be present in the patient with normal or even elevated blood pressure is now recognized. The usual picture of recent perforated peptic ulcer is an example. This patient is pale, sweating, cold (even shivers) and has a fast pulse but his blood pressure is usually unaltered. The anæsthetist in the past may have (to his chagrin and the patient's discomfort) misjudged

this case and witnessed a dramatic fall in blood pressure when peripheral vaso-dilatation occurred with the onset of spinal or relaxing general anæsthesia. It must be recognized that the pallor, sweating and coldness which are invaluable external signs in shock are also the result of the protective mechanism of vaso-constriction in raising the peripheral resistance.

The loss of fluids (other than blood) are progressive changes and must be watched for as the operative time is extended. The loss of blood to a moderate or severe degree is unavoidable in such operations as pneumonectomy, craniotomy, radical mastectomy, etc. The time factor with consequent heat and fluid loss is a hazard in many orthopædic procedures.

Position.—The effect of position of the patient is a factor often neglected by both surgeon and anæsthetist. (We have watched in wonder a sucking chest wound being repaired under pentothal anæsthesia with the patient in the orthopnœic position — the surgeon labouring under the delusion that this position helped his patient's respiratory system. The anæsthetist in this case, I might say, was fully cognizant of the hazards but had been "talked out" of any change). The supine position on the operating table probably accounts for the usual minimal changes we observe during the course of uncomplicated anæsthesia. In this position, venous return is increased, the heart fills better and the patient is more easily controlled.

The Trendelenberg position aids in maintaining blood pressure by increasing venous return and consequent better filling and larger stroke volume of the heart. At the same time respiratory movements are impaired due to intra-abdominal pressure on the diaphragm and the venous return from the head and neck is somewhat impeded. Indeed, in this latter connection, we have personally observed the occasional sharp fall in blood pressure during a low spinal anæsthetic for hæmorrhoidectomy (moderate dosage of 1/1,500 nupercaine) when steep Trendelenberg was used. This fall amounted to 30 to 40 mm. Hg. and is usually accompanied by a fast pulse. The underlying mechanism in these cases would appear not to exist in the anæsthetic technique but rather in reflex phenomena (Bainbridge reflex) associated with improved or abnormally large venous return increasing the heart rate through vagal inhibitions and at the same time lowering blood pressure by reflex from carotid sinus stimulation. In the head-down position, it must also be remembered that cyanosis is often masked by local venous and capillary engorgement of the head and neck.

The lateral position embarrasses respiration by mechanical interference with expansion of the lung. Here also, the airway is difficult to control and the hazards of anoxia due to poor lung ventilation and obstructed airway is encountered.

Operative site.—Whatever the operative site, each has its particular problem for the anæsthetist. About the head and neck, the provision of adequate airway is the paramount concern. Abdominal operations present the perils of heat and fluid loss, poor pulmonary ventilation and reflex circulatory disturbances. It is in the chest, however, that all these problems become acute.

The opening of the chest, or even an extensive thoracoplasty, results in an immediate partial or complete collapse of the lung on that side. As a result, the mediastinum is shifted, venous return impeded, blood pressure falls, cyanosis appears, severe anoxia is imminent and paradoxical respiration usually takes place. If this condition is allowed to remain incorrected, shock rapidly occurs. Conversely, it is remarkable to note how quickly shock is relieved by the closure of a sucking wound of the chest.

METHODS OF CONTROL

In his supportive treatment during the anæsthetic period, the anæsthetist must direct his treatment to approach as closely as possible the normal physiological standards. His methods of control must follow his knowledge of physiology and pharmacology. In other words, he must follow his observations and must not be led astray by empirical thinking. For this reason we have discussed control under physiological headings.

Circulation.—Most of the changes encountered should be anticipated and provision made preoperatively. Blood volume is easily restored by the use of intravenous fluids. The most important measure is the starting of a prophylactic intravenous drip of normal saline before the operation begins. This should be done in all operations where large blood loss will be met, where the operation is lengthy, where the operative procedure itself embarrasses the circulation (*e.g.*, thoracic operations), where the

anæsthetic itself is disturbing (*e.g.*, high spinal) or where the elasticity of arterial walls is diminished (arteriosclerosis; age). When the intravenous has been started preoperatively, analeptic drugs or transfusions of whole blood, serum or plasma may be introduced quickly. Whole blood should be provided beforehand in the operating room in procedures where blood loss is unavoidable. Where shock occurs not due to hæmorrhage, the blood pressure may be made to approach the preoperative (temporarily) by the use of intravenous saline or glucose solution alone.

The use of analeptic drugs should be regarded as a secondary and highly artificial means of control of circulation. One exception occurs in their pre-anæsthetic use before spinal anæsthesa to combat the anticipated blood pressure fall due to sympathetic paralysis.

The use of analeptics in anæsthesia relies upon their ability to (1) stimulate the myocardium; (2) stimulate the vasomotor centre; (3) cause peripheral vasoconstriction; (4) increase venous return (chiefly due to 2 and 3).

The analeptics in common use are adrenalin, ephedrine, neosynephrine, methedrine, pitressin, cardiazol and coramine. Adrenalin acts by sympathetic stimulation and has a direct action on heart muscle by increasing rate and dilating coronary vessels. Ephedrine resembles adrenaline except that its effect lasts considerably longer. Methedrine increases peripheral resistance and raises venous pressure. It does not increase cardiac output. Its pressor effect is more prolonged than that of ephedrine. Neosynephrine increases peripheral resistance and cardiac output but causes bradycardia. Pitressin acts by constricting arterioles and capillaries. Pitressin has the disadvantage of constricting coronary vessels and may cause intestinal cramps. Cardiazol and coramine act on medullary centres. The latter is used chiefly as a respiratory stimulant.

Recently Dripps and Deming reported 2,500 cases in which the drugs paredrine, ephedrine, methedrine and the combination of pitressin-ephedrine were studied when used in conjunction with spinal anæsthesia. They reported the following average percentage fall in blood pressure from the preoperative level: no preoperative pressor drug—36%; with paredrine—18.6%; ephedrine—14.5%; pitressin-ephedrine—5.3%; methedrine—3.0%. We have been using a combination of neosynephrine and ephedrine given 10 min. before the anæsthetic is introduced with favourable results. We have also added this combination to the full intravenous flask when a blood pressure fall was encountered during the course of a spinal anæsthetic. The rate of flow is increasing until the preoperative blood pressure is approached when the rate is then slowed.

Other factors in the control of the circulation are largely beyond the control of the anæsthetist. The position of the patient however can usually be readily altered to Trendelenberg which will favour increased venous return and improved cerebral circulation.

Respirations. — The neurological control of respiration has been outlined. In this regard it is the duty of the anæsthetist to prevent depression of the respiratory centre. At all times therefore, he must provide an adequate oxygen supply. This appears obvious when inhalation anæsthetics are mentioned. It must be pointed out, however, that the need for a good oxygen supply is especially necessary when the centre has been depressed by pentothal or by circulatory changes during spinal anæsthesia. We feel that the rule that pentothal must not be given without oxygen at hand should be extended to include anæsthesia of any form. In the control of respiration the first duty of the anæsthetist is the prevention of anoxia.

Apart from the use of respiratory stimulants (such as coramine) which must be looked upon as temporary measures, the control of respiration is mechanical and rests on the provision of a free airway and adequate pulmonary ventilation. Airway obstructions are eliminated by the use of an endotracheal tube.

Pulmonary ventilation may be controlled by rhythmic compression of the rebreathing bag of the anæsthetic machine. Where the chest is open, controlled breathing with positive pressure is necessary. With regard to chest surgery, endotracheal anæsthesia with tracheal or bronchial aspiration is the most satisfactory method. As pointed out by Noseworthy, steep Trendelenberg is necessary for proper lung drainage to prevent drainage into the intact lung when the lateral position is assumed.

Heat regulation.—The closed method of inhalation anæsthesia and the avoidance of ether favour the conservation of body heat. The temperature of the operating theatre should be about 80° F. The usual draping of the patient

is adequate insulation. In the shocked case, heat may be supplied by warm blankets, etc., the usual precautions being observed to prevent burns.

Nervous system. — The various supportive measures have been mentioned above. In the conscious patient we have found that pentothal in doses which do not produce unconsciousness is very satisfactory in the control of the emotional shock. This is given intermittently in dosage of ¼ to ½ c.c. of the 5% solution p.r.n.

Newer Anæsthetic Techniques

The introduction of a new drug or technique in anæsthesia brings with it perils from two sources, namely, those due to the action of the drug itself and those due to its improper administration. Curare has been used for general muscular relaxation and more recently for prevention of laryngeal spasm and subsequent improved airway. It has been used as a relaxing agent with all the common anæsthetics. Several points must be kept in mind: (1) It acts only on the motor side (it is therefore wrong to speak of depth when mentioning curare). (2) Its action is counteracted by prostigmine which should be kept available. (3) It must never be administered without proper provision for airway control and O_2 supply. (4) It must not be administered during an ether anæsthetic since muscle glycogen has already been partially depleted and muscular action consequently impaired.

Many new analeptic drugs have been recently introduced. Among these is paredrine mentioned above. Sodium succinate appears to have promise and has been used successfully in barbiturate poisoning. Very recently a new substance, called EA-83 by the authors, has been shown to be a strong cardiac and circulatory stimulant.

Recent work on the use of dilute solutions for spinal anæsthesia by Fraser and the use of dilute pontocaine by Lund and Cameron may prove valuable in that blood pressure fall is lessened and supportive measures appear to be less imperative.

Summary

An attempt has been made to correlate the duties of the anæsthetist during the anæsthetic period with regard to supportive treatment. The physiology is outlined briefly and the effects of certain common anæsthetic agents described. The control of the factors effecting the physiological state are discussed according to the physiological system involved. A brief note on newer drugs is made.

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CASE REPORTS

LOCALIZED CALCINOSIS FROM INTRAMUSCULAR INJECTION OF CALCIUM GLUCONATE IN FIVE WEEKS' OLD INFANT*

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The hazards which attend the intramuscular administration of calcium gluconate in infancy are known. Although the 1944 edition of *New and Non-official Remedies*[1] states that this procedure may be employed without harm, several authors[2, 3, 4] have described calcium deposition either at the site of injection or at a distance from it with ensuing abscess formation or muscular atrophy. However, since calcium is only slowly absorbed from the intestine, and because the intravenous route presents technical difficulties, many physicians have continued the practice of intramuscular injections.

The pathological alterations are said to depend on the precipitation of the calcium as a phosphate, followed by coagulation of this sub-

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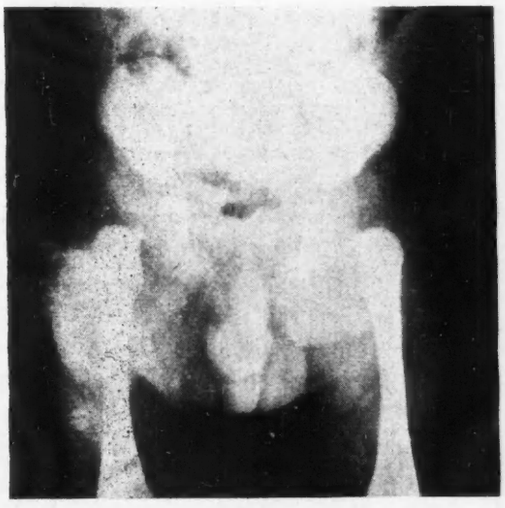
stance within the local vascular channels with resulting necrosis. It has been suggested that the high phosphorus content of the infant's blood serum may facilitate this process.

It is the purpose of this report to present a case which again emphasizes the danger of using calcium gluconate intramuscularly.

A.B., a 5-weeks' old, white male, was admitted to the Children's Memorial Hospital, to Dr. R. L. Denton's service, for the first time on October 19, 1946. He was born on September 9, after a normal pregnancy and delivery, at another hospital, weighing 7½ lb. He was perfectly well until the 6th day of life, when generalized twitchings were noted and a diagnosis of "tetany" was made. Although a determination of the calcium level in the blood was not done, two intragluteal injections of 5 c.c. of a 10% calcium gluconate solution were administered. There were no further twitchings and since the infant appeared to be perfectly well, he was discharged home on the 14th day of life. Shortly afterwards the mother noted that the baby had an indurated area in each buttock, which steadily increased in size, and became very tender, discoloured and warm. She applied cold wet compresses but these did not ameliorate the condition, and after 2 weeks she brought the baby to the out-patient department where admission was advised.

The physical examination revealed a well nourished and developed male infant, weighing 8½ lb., whose temperature, pulse and respiratory rate were normal. No abnormalities of the head ears, eyes, upper respiratory tract, lungs, heart, abdomen or central nervous system, were noted. The lymph nodes were not enlarged. The skin showed a mild scaly seborrhœic dermatitis, involving the face and scalp. In the inferior and outer quadrants of each buttock there was found a hard, rounded, somewhat irregular mass, which was approximately 5 cm. in diameter, and was moderately tender to light palpation. The overlying skin had a mottled purplish hue and was noted to be very firmly adherent to the subjacent tissues.



Laboratory investigations revealed normal red, white and differential blood counts and a normal urinalysis. The blood Wassermann and Old Tuberclin 1:1,000 were negative. A roentgenogram of the pelvis was taken and the radiologist, Dr. D. Wollin, reported—"There is present in each buttock an irregular calcified density. The density on the right measures approximately 5 x 2.5 x 1.0 cm. and on the left 3 x 2.5 x 1.0 cm." (Fig. 1).

Course.—No specific therapy was attempted and the infant was discharged after 4 days. His progress has since been followed at 15-day intervals, and his general condition has remained good, the masses having slowly diminished in size, clinically and radiologically. When last seen, 6 months after discharge, the densities noted in the first roentgenograms had disappeared. Clinically, however, it was apparent that the skin was still firmly attached to the underlying tissues, and that the muscles of this area showed extensive atrophy.

SUMMARY

The dangers of the use of intramuscular calcium gluconate in infancy are stressed. A case is reported in which this method of therapy resulted in localized calcium deposits which later disappeared, leaving residual scar formation and limited atrophy of the muscles of the buttocks.

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TRAUMATIC INOCULATION TUBERCULOSIS

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The introduction of tubercle bacilli into traumatic wounds at the time of injury is uncommon. Several cases have been reported however and in each, as illustrated by the following examples, the mechanism of introduction has been somewhat unusual.

Mayer[1] reported circumcision wounds and eczematous skin lesions infected by a tuberculous attendant. Incye[2] reported an œsophageal stricture infected when bougied by a phthisical attendant. Quaintance[3] reported: (*a*) two cases of tuberculous tenosynovitis of the hands in employees of a slaughterhouse where diseased animals were slaughtered. (*b*) A case of tuberculous tenosynovitis of the hand in a patient with an open tuberculous lesion of the sacrum. (*c*) A case of a nurse who pricked her wrist with a safety pin while attending a pa-

tient with open pulmonary tuberculosis. One month later a small lesion appeared in the skin and after another month tubercle bacilli were recovered from a suppurating axillary gland.

Pathologists and butchers have been known to develop tuberculous lesions after working with tuberculous material.

The following case report is presented as an additional example of traumatic inoculation tuberculosis.

On July 10, 1943, a boy aged 17 was admitted to the Toronto General Hospital having suffered an accident, while diving in the Don River, one hour prior to admission. He was in moderate shock and had suffered a seven-inch laceration of the epigastrium through which had eviscerated stomach, transverse colon and greater omentum. There was also a six-inch laceration of the right forearm involving extensor muscles and tendons. There was paralysis of the right extensor pollicis longus.

Under general anæsthesia the abdominal wound was thoroughly irrigated and debrided; 10 grams of sulfathiazole powder were placed in the peritoneal cavity and the wound closed with continuous chromic catgut sutures in anterior and posterior rectus sheaths. The forearm wound was irrigated and debrided and a primary suture done. No attempt was made to repair the lacerated muscles.

Intravenous sulfathiazole and fluids were administered postoperatively. The temperature returned to normal by the 8th postoperative day and the wounds both healed without any evidence of infection. The patient was discharged on the 14th postoperative day with residual paralysis of the right extensor pollicis longus.

He was readmitted September 2, 1943 for repair of his right extensor pollicis longus. Both wounds were completely healed. There was absence of both faradic and galvanic response in the right extensor pollicis longus and it was decided that the muscle belly had been transected. On September 10, the right extensor carpi radialis brevis tendon was transplanted into the extensor pollicis longus at the wrist joint.

Postoperatively the patient ran a fever of 102.5 degrees for four days and the operative wound became red, œdematous and swollen. Oral sulfathiazole therapy was started on the second postoperative day and by the 8th day the temperature had returned to normal without any suppuration having occurred. Movement of the thumb was encouraged throughout the postoperative period and he was discharged on the 14th postoperative day with good power of extension of the thumb and the operative wound healed.

A few days after his discharge and approximately eleven weeks from the time of his original injury the operative wound at the site of the tendon suture broke down and there was a small amount of purulent discharge. At the same time redness and swelling of the midportion of the abdominal wound occurred; this progressed to ulceration in a few days. The wrist wound healed again rapidly but the abdominal ulcer persisted and increased in size.

The patient was readmitted October 14 at which time there was an ulcer 1½" in diameter in the middle of the abdominal scar. The ulcer had pale blue overhanging edges, a pale base and a watery discharge. A few days after admission a smaller ulcer with similar characteristics formed in the operative wound at the wrist joint. Cultures from both ulcers grew *Staph. aureus*. Neither ulcer improved on local treatment however and biopsies were taken from each on October 25. Both biopsies were reported by Dr. W. L. Robinson, pathologist, Toronto General Hospital, as showing the typical microscopic picture of tuberculous ulceration. Culture and guinea inoculation of the biopsy material failed to demonstrate tubercle bacilli. An intracutaneous tuberculin test (1/20 mgm.) and chest x-ray both were negative for tuberculosis. A repeat biopsy was taken, and this also was reported by Dr. W. L. Robinson as typical tuberculous ulceration.

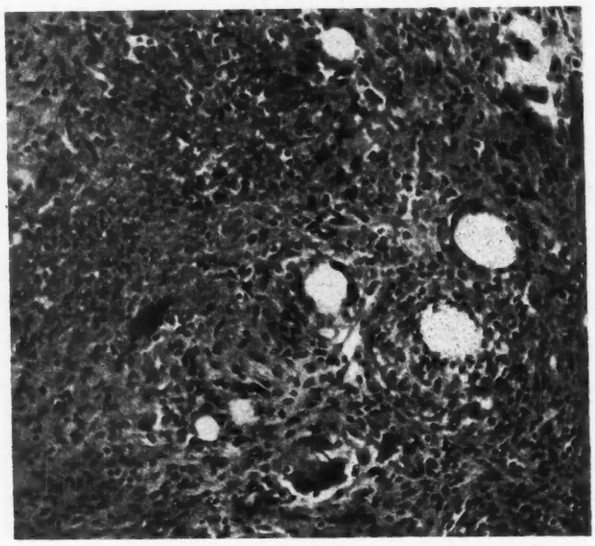

Fig. 1.—Section from abdominal wound ulcer (x 165).

The patient was discharged November 10 to a sanatorium where ultraviolet ray treatments were instituted. The ulcer at the wrist healed very rapidly, the abdominal ulcer more slowly. The patient was discharged from sanatorium in two months completely healed. Both wounds have remained healed since that time and the patient served in the Canadian Army Overseas with no recurrence.

The source of the tuberculous infection in this case remains in doubt. It seems probable however, that the abdominal wound was infected at the time of injury by tubercle bacilli in the water of the river into which he dived. The operative wound on the wrist, at the site of tendon suture, may have become infected with tubercle bacilli in either of two ways. First, at the time of tendon repair exploration under the skin into the tissues on the dorsum of the forearm in the region of the original forearm laceration may have introduced the organisms into the operative wound. Second, the abdominal ulcer was present while the wrist wound was open at the time it first broke down postoperatively, and tubercle bacilli may have been introduced into the wrist wound from the abdominal ulcer at that time.

Reported with the kind permission of Dr. Gordon D. W. Murray.

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TWO CASES OF THROMBOCYTOPENIC PURPURA TREATED WITH FOLIC ACID*

T. H. Gridley, B.A., M.D. and Theo. R. Waugh, B.A., M.D., C.M.

Montreal, Que.

Folic acid is considered an essential panhæmatopoietic factor. However, its use successfully as a therapeutic agent has been confined for the most part to the treatment of the macrocytic anæmias in which some disturbance in the formation or handling of liver extract factor plays a rôle. It has not been shown to be specifically efficacious in the essential thrombocytopenic purpura of Werlhof, but it is reasonable to suppose that some types of deficiency of platelets might be benefited by it. This led to the use of this drug by one of us (T.H.G.) in two unusual and stubborn cases of thrombocytopenia with hæmorrhagic diathesis. The effect was so obvious and so prompt that it is difficult to believe it was not due to the action of this therapeutic agent.

CASE 1

Mrs. F. first came under our care in 1943, at which time she was 52-years of age. She gave a history of occasional attacks of purpura dating back to 1933. They varied in severity, but often followed an infection, such as "strep throat", etc. She had been treated by transfusions, snake venom, and calcium gluconate. In June 1943 she had a particularly severe attack with headache and was admitted to hospital. At this time the hæmogram showed a moderate hypochromic anæmia (hæmoglobin, 11.8 gm. %) with 2% reticulocytes. This was believed to be due to blood loss. The sedimentation rate was markedly increased and there was a rise in polymorphonuclears with reduction in the other white blood cells. The bleeding time was prolonged markedly, but the fibrin, clotting and prothrombin tests showed the coagulability to be more rapid than normal. The platelets numbered only 3,000 per c.mm., and varied greatly in size with giant forms. There was no retraction of the clot and the Rumpel-Leede test was strongly positive. These findings left no doubt that we were dealing with a thrombocytopenic purpura, but, as often, the distinction between a primary essential and some secondary form on the basis of the hæmogram alone was not possible. In this case the history was somewhat equivocal. She had had the purpura for several years but not during childhood and it seemed associated, or at least, aggravated, by any septic condition.

As her hæmorrhagic diathesis did not improve, splenectomy was decided upon and carried out by Dr. Fraser Gurd at the Montreal General Hospital on July 19. The organ weighed 185 gm., was reddish brown in colour and moderately firm. The histological findings were similar to those frequently met with in thrombocytopenic purpura. Four days after operation the platelet count was 144,000 and on discharge August 9, 365,000 with complete disappearance of the hæmorrhagic condition.

During the following November the purpuric spots returned and a hæmogram done on December 27 showed only 9,000 platelets with prolonged bleeding time, absence of retraction of the clot and a positive capillary resistance test. However, there were no spontaneous hæmorrhages. Two weeks later the blood was again examined with similar results. From then on for a period of over two years she was invalided by the condition. Exacerbations occurred when large hæmorrhagic extravasations appeared in and under the skin, with epistaxis and bleeding from the gastro-intestinal tract. During this period the platelets never rose above 10,000 on repeated examination, and the Rumpel-Leede test was always positive and the bleeding time prolonged. She was hospitalized for transfusion to combat the anæmia due to blood loss on two occasions and various forms of therapy, such as snake venom, vitamin C, vitamin K, etc., were found ineffective.

On May 6, 1946, at the height of a particularly severe attack of purpura and spontaneous bleeding, folic acid (folvite, Lederle) was started in daily dosages of 10 mgm. by oral administration. Improvement was noticeable on the 6th day, no further hæmorrhages occurred and no new spots appeared in the skin. Approximately a month later (June 12) a complete hæmogram revealed a platelet count of 74,000, the bleeding time was only very slightly prolonged, and the Rumpel-Leede test was faintly positive. There was considerable anæmia (hæmoglobin 10.8 gm. %) of the hypochromic type and evidence of active regeneration (3% reticulocytes). As usual since the splenectomy there was a leucocytosis of about 12,000. On July 23, her platelets had reached 140,000 and all tests for bleeding, coagulability and vascular stasis were normal. With cessation of the blood loss her anæmia slowly disappeared aided by iron therapy. The folic acid treatment was continued.

It is now fourteen months since starting this treatment and she has had no signs or symptoms of a recurrence of the hæmorrhagic diathesis.

CASE 2

Mr. N., aged 66, was first aware of an abnormal tendency to bleed following a tooth extraction in March, 1946. This was controlled with great difficulty. He had been on antiluetic treatment for several months, during which time bismuth was pushed to the point of toxicity.

Severe hæmorrhages from a perforation of the nasal septum occurred a few days later and purpuric spots appeared on the legs. A hæmogram at this time revealed a moderate post-hæmorrhagic anæmia with active regeneration, a leucocytosis of 10,000, and 43,000 platelets; these varied considerably in size. The bleeding time was not appreciably prolonged but the Rumpel-Leede test was positive and there was only slight retraction of the clot. The tests for coagulability were normal. It was felt that we were dealing with a thrombocytopenic purpura, secondary to the antiluetic therapy.

On May 1, he was placed upon folic acid (folvite, Lederle) 5 mgm. daily with some apparent improvement, but not complete disappearance of the hæmorrhagic tendency. On July 31 his platelets still numbered only 45,000 though his anæmia was greatly improved and the coagulogram was otherwise normal. The dose was then increased to 10 mgm. daily and the hæmorrhagic diathesis completely disappeared. On October 16 the platelets numbered 160,000 and there was no anæmia. This patient has continued on the drug without any recurrence of the condition.

COMMENT

It is, of course, impossible to prove from the evidence at hand, that the improvement in these

* From the Department of Medicine of the Homœopathic Hospital of Montreal and the Department of Pathology, McGill University, Montreal.

cases was due solely to the effect of the folic acid. One should never be dogmatic under such circumstances. However, clinically there seemed little doubt, particularly in Case 1, because of the marked and almost immediate change in the signs and symptoms, that this treatment was responsible for the amelioration of the condition through rise in the number of platelets. Moreover, there has been no recurrence of symptoms, or return of the thrombocytopenia under continuation of the drug.

Neither of these cases, do we feel, is an essential thrombocytopenia of Werlhof. Case 2 is in all probability secondary to the bismuth therapy and Case 1 is most likely some other idiopathic form of thrombocytopenia with a profound and prolonged paralytic effect on platelet formation.

These cases are presented to recommend at least a trial of this drug in cases of persistent hæmorrhagic diathesis due to platelet deficiency, and more particularly when this is apparently due to a secondary inhibition of thrombocytogenesis.

CLINICAL and LABORATORY NOTES

REMOVAL OF FOREIGN BODIES IN RECTUM

F. H. MacLeod, M.D.

Cleveland, Ohio

The following method is advanced as a possible aid in removing certain rectal foreign bodies which have no available purchase point for common instruments.

This method has been used successfully by me to remove a forty watt household electric light bulb intact, and a fæcal impaction of similar size. The light bulb had been inserted with socket portion entering and an attempt to do a version was unsuccessful.

Under anæsthesia of choice, with patient in lithotomy position, the anal sphincter is dilated digitally to allow entrance of four fingers. An assistant exerts pressure over sigmoid through abdominal wall to help prevent displacement of foreign body into sigmoid. With a guiding index finger in the rectum two large table spoons are applied in manner of obstetrical forceps. The index finger of the left hand is then used to form a joint near the neck of the spoons. A strong steady pull will dilate the sphincter and deliver the foreign body with a minimum amount of trauma.

UNIVERSITY OF TORONTO

Faculty of Medicine

REFRESHER COURSE IN OPHTHALMOLOGY AND OTO-LARYNGOLOGY

A refresher course in the combined subjects of practical ophthalmology and oto-laryngology will be held under the auspices of the Faculty of Medicine, January 26th to 31st, 1948.

The course will be so arranged that the operative procedures and bedside conferences of the one specialty will be held in the morning and the didactic conferences or lectures in the afternoons. The reverse of this procedure in the other specialty will make it possible to pick whatever subjects may be of interest to each applicant.

A full programme will be published later and will also be available on application to the Medical Office, University of Toronto. The fee for the the course is $50.00. The course will be given for a minimum of 10 students and a maximum of 20 students.

No Applications Received After November 30th

THE CANADIAN MEDICAL ASSOCIATION

Editorial Offices—3640 University Street, Montreal

(Information regarding contributions and advertising will be found on the second page following the reading material.)

EDITORIAL

BIRTH CONTROL

SOME of the various aspects of birth control were considered at a recent meeting of the Royal Society of Medicine of London.* The problem presents medical, social, legal and religious aspects. For that reason the discussions opened with a plea to take a wide outlook on the subject.

The genetic aspects were dealt with by Dr. E. B. Ford, who referred to the advisability of birth control in hereditary disease. Control in this case meant the prevention of any offspring at all, but the way in which any given disease was inherited needed consideration. Some hereditary conditions could be transmitted only by persons themselves affected, the heterozygous defects. Here it is obvious that the offspring will be diseased and control is reasonable. In the case of recessive familial defects, however, the parents are nearly always normal and the children also, but these will be heterozygotes and the disease will appear in their offspring if they marry one who is also a heterozygote. Even then the disease will only reappear in one-quarter of the offspring of such a union. So then the population contains three classes; those truly normal; those apparently normal yet transmitting the defect (the heterozygotes); and the actual sufferers (recessives). The proportions of these groups in the population can be calculated and it is clear that hereditary units or genes are so widely scattered that eugenic measures regarding these are impracticable. At the same time members of a family with a recessive defect should be told that it is more dangerous for them than for others to marry near relatives.

Further research may make it possible to decide the group in a given case. In hæmophilia for example, Andreasson in Denmark has shown that by appropriate measurements of coagulation time, heterozygous women may be distinguished from true normals. In spite, therefore, of the difficulties, there is knowledge available to guide the practitioner in advice regarding birth control on account of inherited disease.

From the medical point of view, Mr. Aleck Bourne said that the subject was so beset with moral and religious prejudice, as well as social and political anxieties, that the mental and physical effects in individuals were apt to be overlooked. He considered in detail the methods of contraception, and concluded that harm to the woman or couple does not follow with the usual methods followed except coitus interruptus and permanent intra-uterine pessaries. There was admittedly a loss of fulfilment if a woman voluntarily deprived herself of all child-bearing.

What was to be said in favour of contraception? If used not so much to limit as to space child-bearing, it was wholly good. The happiness of a large family can be beyond estimation, but economic changes have inexorably made large families impossible in all but exceptional cases, and the physical and mental effects of rapidly repeated pregnancies lead to an intolerable strain, which birth control properly used can prevent.

In the opinion of a general practitioner, Dr. K. F. McFadyen, the profession generally was astonishingly ignorant about contraception, partly from the influence of religious fanaticism, which prevented the formation of any scientific opinion on the subject, and partly because medical students received so little instruction on it. He felt that contraception was one of the few subjects on which a general practitioner could speak with authority. No one could deny that it was a frequent necessity on the grounds of ill-health, both physical and mental. All the more reason then for critical appraisal of the methods available. So far as "living apart" was concerned it was in the case of young people an intolerable burden. He had seen an instance, following religious instruction, in which the results had been disastrous. It was time that there was more contact between medicine and organized religion in regard to sexual difficulties. Certainly marriage should be preceded by professional medical advice as well as religious instruction.

* *Proc. of Roy. Soc. of Med.*, **40**: 51, 1946.

According to Sir Travers Humphrey, contraception was not illegal. The question of sterilization of the male was raised, but was not clarified. It had been stated that the operation was illegal, but it might be asked for by the man himself under certain circumstances. Experience had shown however that whilst such sterilization might be desired at a given time, it might be regretted later on. Some surgeons had abandoned the practice for this reason.

The discussion clearly demonstrated the complexity of the subject, as well as the varying opinions that have to be considered. Giving of advice in this matter therefore is difficult, but there is the more need to be familiar with its various aspects.

EDITORIAL COMMENTS

Drugs in Asthma

A timely warning is sounded in a recent paper from the Mayo Clinic, on the use of drugs in asthma.* Drs. Morgan and Prickman restate the problem of management in severe asthma. Amongst the difficulties is the fact that certain people may exhibit strange and even dangerous reactions to ordinary drugs, a characteristic which seems to be more marked amongst chronic asthmatics. In support of this conclusion these authors quote a series of 17 consecutive patients with severe asthma, 12 of whom either gave a history of previous abnormal reactions to drugs or else developed such reactions whilst being treated in hospital. It is wise always to accept a patient's statement that he is sensitive to a drug rather than to try and confirm it by administration or testing. Even small amounts may precipitate a fatal reaction in a given case. One of the commonest instances of drug allergy is acetyl salicylic acid, or aspirin. It is also a very commonly used drug for relief of asthma, either alone or in asthmatic remedies. In addition to allergy however there may be intolerance to ordinary drugs. Morphine sulphate and codeine are almost uniformly poorly tolerated in asthmatics, and in the opinion of these authors should not be used in asthma. Even if morphine quiets the respirations, wheezing may continue, and the slowing of the respirations tends to retention of bronchial secretions. Morphine is a dangerous drug in asthma, and yet it is still frequently used. The iodides are another group to which intolerance is fairly frequent in asthma. It is of course an effective and commonly used expectorant. Side effects from other drugs have also been noted from such drugs as aminophylline, benadryl, pyribenzamine and sulfanilamide, but these effects are usually not serious.

* Intolerance to Common Drugs administered for Asthma, Morgan, John L. and Prickman, Louis E.: *Proc. Staff Meetings of the Mayo Clinic*, **22**: 391, 1947.

Pasteurization Prevents Epidemics

In the 25-year period form 1920 to 1945 there were 26 officially reported milk-borne epidemics in Canada, each with 30 cases or more. These 26 outbreaks, attributed to consumption of unpasteurized milk, accounted for 702 deaths from typhoid fever, paratyphoid, and septic sore throat.

In the same period there were numerous other lesser outbreaks of the same diseases and of undulant fever, also milk-borne. These minor epidemics also accounted for numerous deaths. For instance there were officially reported 1,124 cases of undulant fever, an extremely difficult disease to diagnose, in the years 1940 to 1945. Twenty-three deaths were attributed to this disease in that period.

An interesting aspect of this milk-borne epidemic picture is the fact that since Ontario's adoption of compulsory milk pasteurization, there has not been one serious outbreak of a milk-borne disease in that province. Ontario is the only province with such a law. On the other hand, the rest of Canada since the 1938 enactment of the Ontario law, has suffered from 12 officially reported milk-borne outbreaks, chiefly septic sore throat and typhoid.

These facts would seem to provide additional proof that pasteurized milk is the only safe milk.

MEN and BOOKS

MR. CHURCHILL AND THE PHYSICIANS*

INTERNATIONAL CONFERENCE DINNER AT GUILDHALL

A dinner in connection with the International Conference of Physicians was held at the Guildhall on September 10. Lord Moran presided, and the distinguished guests included the Lord Mayor and Sheriffs, the Belgian, Chinese, and Egyptian Ambassadors, Mr. Winston Churchill, M.P., Lord Woolton, Viscount Hall, the Presidents of the Royal Society, the Royal Society of Medicine, the Royal College of Obstetricians and Gynæcologists, the General Medical Council, and the British Medical Association, the Master of the Society of Apothecaries, and the Masters

* From *The British Medical Journal*, September 20, p. 466, 1947.

of several of the City Companies. Nearly 500 were present.

Mr. Winston Churchill, in proposing the health of "The Medical Profession", spoke as follows:

A third of a century has passed since the last International Congress of Physicians was held in London. I was reading a few days ago the reports of that meeting in 1913, and the speeches which were delivered by my two great friends and political colleagues of those days, Lord Morley and Sir Edward Grey. Reading them again, it was impossible to resist the impression of the sedate, orderly, progressive, and liberal-minded world in which they dwelt or of the splendour of Europe rolling in culture and wealth and also, alas! in pride, on the eve of the great catastrophe which overwhelmed the human race and in the aftermath of which we are still involved. I say to our foreign friends from so many countries now 34 years later how warmly we welcome you back to the banks of the Thames and how proud we are to do our best to entertain you in the City of London amid the ruins we have not yet been able to repair, and in this ancient hall which bears in every aspect the scars of honourable and victorious conflict. What a fearful journey we have all made since the Congress of Physicians in London in 1913, and what a contrast is the shadowed world of today to the hopeful though already anxious society of men and nations which then represented our national and international life, and what a change we have in all the doubts and confusions of the present time from the glittering structure of society which in so many lands had been built up across the centuries by so much toil and skill.

I noted in reading those speeches that both John Morley and Edward Grey spoke in 1913 of the advance of science with unquestioning faith in its wholly beneficent mission. Now, however, when mankind, without having improved at all, in fact having lost the sense of many of its most precious values, has got control of the most terrible agencies of destruction, and when many of its ablest brains are working night and day for the annihilation of the human race—or such portions of it as they may be temporarily opposed to at any time—working on these methods of annihilation both by the devastation of explosions and by the organized spreading of disease among men, cattle, and crops, when we look at these manifestations of scientific "progress" it is evident that a certain amount of discrimination must be mingled with our satisfaction at our triumph over nature and our piercing of her secrets.

But tonight all our thoughts are turned to healing and not destruction, and we can unfeignedly and unreservedly rejoice in the progress of medicine and—if I am allowed to mention it here—of its close and faithful companion, surgery. Medical science and surgical art have advanced unceasingly and hand in hand. They have certainly had no lack of subjects for treatment. The medical profession at least cannot complain of unemployment through lack of raw material. The genius of mankind is stirred and spurred by suffering and emergency, and a long succession of noble discoveries in the application of the healing art stand forth with all the greater brilliance against the dark and hideous background of hatred and chaos. The miseries of the population have given opportunities to the medical profession of rendering service to their fellow mortals on an unexampled scale, and at the same time unfolding science in many other spheres offers an ever broadening outlook for the toil and devotion of those who follow the practice of medicine. There is no profession or calling whose members can feel greater or deeper conviction of duty of lasting value to be done. There is no profession in which they can feel a surer confidence in an expanding future than those who have gained a command over pain and disease. This, my lords and gentlemen, must be at once an intense and lively inspiration to those who devote their lives to the study and practice of medicine, and I am very glad to offer those who are gathered here in this most distinguished assembly my respectful congratulations on the path in life that they have chosen.

I have been inclined to feel from time to time that there ought to be a hagiology of medical science. One ought to have saints' days to commemorate the great discoveries which have been made for all mankind and perhaps for all time—whatever time may be left to us. Nature, like many of our modern statesmen, is prodigal of pain, and I should like to find a day when we could talk aloud—a day of jubilation and praise—of good St. Anæsthesia and of just and pure St. Antiseptic. I would not venture in a company so distinguished as this to pretend to any qualifications to judge who should figure in this list, but if I had a vote I should feel bound to celebrate, among others, St. Penicillin, whom I see represented here, and St. M. and B., both invaluable figures to whom I was introduced during the war in good time by Lord Moran, and without whose benedictions I might be regarding your present troubles, if not otherwise preoccupied, from a more serene sphere.

It seems to me that the medical profession has endless worlds to conquer. An eminent American freethinker was once asked how he would have made the world different if he had been God. He replied, "To begin with, I should have made health infectious instead of disease". I throw that out as a constructive suggestion. We are all out nowadays for constructive suggestions, and here is something for your program of future activities. At any rate, it would be a great reform in politics if wisdom could be made to spread as easily and rapidly as folly. I asked Lord Moran to tell me what I ought to say in this discourse. He suggested that I might compare the professions of medi-

cine and politics. But I was bound to reject that suggestion, finding it impossible to make such comparison, because medicine requires study and the experience of a lifetime, while everyone in a free country, as part of his birthright, knows all about politics after leaving the infant school and on every occasion when he is released from the asylum.

Go forward, then, gentlemen, members of this great vocation, upon your upward path, and strive for ever greater, sharper, and more powerful weapons against the suffering and weakness which afflict us here below. I wish you all success in your noble endeavours, and it is with the greatest sense of honour that I propose the health of "The Medical Profession" and couple the toast with the name of Lord Moran.

Lord Moran's Reply

In replying to the toast Lord Moran, taking up the reference to a hagiology of medicine, said that the medical profession had found it easier in the past to excommunicate heretics who had deviated from the narrow path than to canonize saints. He paid a high tribute to Mr. Churchill, who, he said, possessed the scientific mind—a mind characterized by two qualities in particular—namely, fertility of ideas and an insatiable curiosity. Of Mr. Churchill's fertility in ideas he cited President Roosevelt, who, in referring to the Churchillian project of making artificial harbours by means of sunken ships, said: "He has about a hundred brilliant ideas a day, and four of them are good." As for curiosity, it was only necessary to call in medical evidence, for Mr. Churchill as a patient was extraordinarily inquisitive when, during his wartime illness, he was given penicillin. The sensitiveness or otherwise of the "bug" and the prospect of its "unconditional surrender" interested him vastly. Indeed, Mr. Churchill himself had said that science was only organized curiosity.

Lord Moran went on to say that he thought there was an increased respect for science among the public, though he doubted whether the educated public when in difficulties turned instinctively to the scientist for succour, or whether the Government or industry had as yet made full use of the help which the scientist could give. When the Cabinet was in need of legal advice it turned to the Law Officers of the Crown; when in doubt about the defence of the realm, to the Chiefs of Staff; when in financial difficulties, to the directors of the Bank of England; but when Ministers were at a loss in some matter affecting the health of the people they had not yet elaborated a suitable machinery for bringing to their help the best brains in the profession. In saying that he did not think a committee of thirty or forty doctors, such as the Negotiating Committee, fulfilled the point he had in mind. He also compared the public acclamation which had always greeted triumphs in arms with the comparative indifference to the achievements of the healing art; yet it had been said that Lister had saved more lives than had been lost in all the battles since there were records of war. Lister was one of the only two medical men who had been made freemen of the City of London, the other being Edward Jenner, and apart from these there had been only two other scientists similarly honoured—Sir George Airy, a former Astronomer Royal, and Sir Henry Bessemer, the engineer—a small recognition as compared with the honours properly accorded to the profession of arms.

"In looking, as a doctor, for a prescription for the social malaise of our time", said Lord Moran in conclusion, "I find that Pascal, writing in 1655, said that most of the evils of life arise from a man's being unable to sit still in a room. Thought is still the prerequisite to sound action. Ages of quiet, sedentary, thinking men have done what has been worth doing in the world. It is a matter for regret that, owing to the increasing tyranny of routine, leisure has gone out of the lives of men in the learned professions, so that they are in danger of losing their culture."

MISCELLANY

THE WORLD MEDICAL ASSOCIATION

T. C. Routley, C.B.E., M.D., LL.D., F.R.C.P.[C.]

Toronto, Ont.

At three o'clock in the afternoon of Thursday, September 18, 1947, in "Domus Medica", Paris, the home of the French Confederation of Medicine, it was my privilege and pleasure as Chairman of the International Medical Conference to announce to 125 delegates and observers from 48 nations that the World Medical Association was born. The significance of that moment and the potentialities wrapped up in it remain to be unfolded; but there can be no doubt that the representatives who were present realized the importance of what they were doing and were persuaded that this new body, federating all national medical associations for the lofty purpose of assisting all mankind to attain the highest possible level of health, might become one of the most potent influences in the promotion of health and world peace.

It will be recalled that, in September, 1946, on the invitation of the British Medical Association and the former Association Professionnelle Internationale des Médecins, delegates from thirty-two national medical associations assembled in London to consider the formation of an international medical association. At that conference, it was unanimously agreed that such a body should be formed. An Organizing Committee of twelve persons, of whom I had the honour to be chairman, was appointed and instructed to work out the details. During the past year, this committee has met four times—twice in London and twice in Paris. Its main task was the construction of a constitution and by-laws and the preparation of a program for the new body. The committee presented its report to the second conference called to meet in Paris on September 16, 1947.

The response of the national medical associations to send delegates and observers to the second conference was indeed gratifying as 125 persons representing 48 nations answered the roll call. The Canadian Medical Association was represented by Dr. Wallace Wilson, of Vancouver, immediate Past President, Dr. Léon Gérin-Lajoie, of Montreal, Dr. G. D. W. Cameron, of Ottawa, Deputy Minister of National Health for Canada, and Dr. T. C. Routley, General Secretary. The first two days were devoted to a detailed consideration of the constitution and by-laws and a clause by clause study of the report of the Organizing Committee. It was clear from the outset that the documents which had been circulated earlier had been carefully studied, and most of the clauses were subject to explanation and elucidation with a number of them undergoing amendments.

The South American delegates, representing 21 countries, which are closely knit in a Pan American group, spoke and voted as a unit, but, because of language difficulties, sometimes reversed their votes when they became better acquainted with the questions in issue. Our South American colleagues desired the Spanish language to be recognized as an official language of the Association, in addition to the French and English languages which had already been agreed upon as the two official languages. This group further desired that there should be appointed an Assistant Secretary in each of the three official languages. The conference having agreed to these suggestions, the South American delegates enthusiastically threw themselves into the organization and assured it of the hearty support of the more than 70,000 Doctors whom they represented.

While the representatives of some countries were more vocal than others, it was abundantly clear from the keen debate and close attention given to the two days' consideration of the articles, that there was widespread unanimity of opinion with respect to the importance of what was being written. Indeed, it may be said that the World Medical Association was born with every hope of receiving strong support throughout the world when its aims and objects become thoroughly known and appreciated.

And now a word about the aims and objects. They are seven in number, the first six having been put forward by the Organizing Committee with the seventh being added on the unanimous recommendation of the Conference: (1) To promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available. (2) To maintain the honour and protect the interests of the medical profession. (3) To study and report on the professional problems which confront the medical profession in the different countries. (4) To organize an exchange of information on matters of interest to the medical profession. (5) To establish relations with, and to present the views of the medical profession to, the World Health Organization, U.N.E.S.C.O. and other appropriate bodies. (6) To assist all peoples of the world to attain the highest possible level of health. (7) To promote World Peace.

Inter alia, the constitution provides for the following: The election of a President, a President-Elect, an Honorary Treasurer, an Honorary Secretary and an Administrative Council of ten persons; an annual meeting to be moved from country to country; the publication of a Journal and (or) bulletins; and such other activities as will promote the aims and objects of the Association.

A careful review of these objects will disclose that the program of the new body encompasses practically everything which would tend to improve or protect the health of the people of the world.

Upon the completion of the conference and the acceptance of its Articles and By-Laws, the meeting resolved itself into the first session of the General Assembly of the World Medical Association. At this juncture, it fell to my lot to instal Professor E. Marquis, Directeur de l'Ecole de Médecin de Rennes, France, as the first President of the World Medical Association. For the next two and one-half days, President Marquis tactfully guided the deliberations of the Assembly through its first session. The Assembly by formal motion, thanked the Organizing Committee for the work it had done during the past year and particularly extended its thanks to Dr. Chas. Hill and Dr. Paul Cibrie who had acted as joint honorary secretaries of the Committee and who had been largely responsible for the activities of the Committee and the assembling of the documents which were presented to the conference.

Until such time as a permanent secretary is appointed Dr. Chas. Hill, Secretary of the B.M.A., kindly agreed to act as the honorary secretary of the Association. His appointment to this post was unanimously approved by the Assembly. Dr. Otto Leuch, of Zurich, Switzerland, who had been acting as Treasurer during the organizing period was unanimously elected honorary treasurer of the Association.

Dr. Leuch proposed that there be levied upon each national association an annual subscription of not less than 1,000 Swiss Francs ($250) and not more than 10,000 Swiss Francs ($2,500), based upon a per capita contribution of 10 Swiss Centimes. This will be better understood when it is pointed out that the Canadian Medical Association will pay an annual subscription of less than $300 while the American Medical Association will pay approximately $2,500, which is the ceiling. It is estimated that the total income from subscriptions will be somewhere in the neighbourhood of $20,000 a year.

The Assembly recognized that the annual income based upon such modest subscriptions will not be large and that additional funds will be required if the World Medical Association is to perform adequately many of the functions which it visualizes. When world conditions improve, the Association no doubt can greatly increase its fees but for the present, many nations adversely affected by the recent war, will find even the proposed modest assessment something of a burden. To offset this situation, the delegates from the American Medical Association made a handsome offer to the Association. The American Medical Association was represented in the conference by Dr. Ross Sensenick, President-Elect of the Association, and three members of its Board of Trustees in the persons of Dr. Elmer Henderson, the Chairman, Dr. Louis Bauer, and Dr. Ernest Irons, the Secretary. Before leaving America, these gentlemen had conferred with some prominent business men who had become interested in the potentialities of the World Medical Association. Accordingly, the delegates were in a position to offer the World Medical Association $50,000 a year for five years with certain definite conditions attached to the offer. These were:

1 That the head office of the World Medical Association should be in North America.

2. That the American funds would be used for the following purposes: (*a*) The remuneration and expenses of the secretary, other officials and clerical staff. (*b*) The rent, rates and other disbursements in connection with the official headquarters. (*c*) The general office expenses of the headquarters Office Staff. (*d*) The cost of publication of the Association's official journal or bulletin. (*e*) The travelling costs of members of Council.

3. That the cost of the developments listed above be estimated to be not more than $50,000 in the first year; and an amount in the sum of $50,000 to be made available by the Committee each year for five years.

4. That the Council be authorized to act on the Assembly's behalf in appointing a Secretary to the World Medical Association and to make all other staff arrangements, regional and other.

5. That member-Associations be recommended to consider the formation of W.M.A. supporting committees in their several countries.

6. That the Council be authorized to prepare plans of development, entering into any necessary consultation, and submit their proposals to the Assembly.

7. That nothing in these suggestions shall be construed as diminishing the authority of the General Assembly for the control of the policy and affairs of the Association.

NOTE: The conditions cited do not in any manner encroach upon the authority or autonomy of the Association.

After long and careful debate, the American proposal was adopted almost unanimously. Coupled with acceptance was a resolution of thanks to the American Committee and particularly to the lay members of the Committee for their generosity. The Assembly passed a further resolution instructing the Council to make appropriate studies to ascertain if it would be possible for gift funds as might be provided to the W.M.A. being considered tax free in the respective countries.

Proceeding with its program, the Assembly dealt with the following:

Medical and Allied Problems.—Instructed that a complete survey and inventory be made by all the member associations with respect to medical and allied problems in their several countries, the results of this inquiry to be reported to the next annual meeting.

Medical War Crimes.—Considered reports emanating from the United Kingdom, France, Greece, Bulgaria, and Denmark, dealing with medical war crimes. It was unanimously agreed that such medical war crimes as were on record during the past war should be considered outlawed, and it was agreed that the medical association of Germany would not be admitted to the W.M.A. until the former body had repudiated the war crimes committed by members of the medical profession in Germany and had given assurance that they would not be repeated in the future.

Annual Meeting, 1948.—The Association had before it four invitations for the annual meeting of 1948. After careful consideration the invitation from Czechoslovakia to meet in Prague was accepted and on the nomination of the Czechoslovakian delegation Dr. James Stucklich of Prague was unanimously elected to the office of President-Elect.

Election of Council.—The Constitution and By-Laws provide that the affairs of the Association between annual meetings shall be conducted by an administrative Council of ten elected members, with the President, President-Elect, Honorary Treasurer and Honorary Secretary being members *ex-officio*. The election resulted in the following ten persons being named to Council: Dr. D. Knutson, Sweden; Dr. Louis H. Bauer, United States; Dr. Jose Angel Bustamante, Cuba; Dr. Paul Cibrie, France; Dr. Alexander Hartwich, Austria; Dr. P. Z. King, China; Dr. J. A. Pridham, Great Britain; Dr. S. C. Sen, India; Dr. L. G. Tornel, Spain; Dr. T. C. Routley, Canada.

At its first meeting held on Saturday, September 20, the Council elected Dr. T. C. Routley of Canada, Chairman, and Dr. D. Knutson of Sweden, Vice-Chairman.

Council authorized the Chairman and the American delegate, Dr. Bauer, to make all necessary arrangements to set up the Association office in North America, including the appointment of staff. It is hoped that during the coming year, the Chairman and Dr. Bauer will be enabled to make recommendations to Council for the selection of a permanent Secretary. Meanwhile, Dr. Chas. Hill, Secretary of the B.M.A., has kindly consented to act as Honorary Secretary to the Council.

With respect to the recommendation of the General Assembly that assistant secretaries be appointed as speedily as possible, Council was pleased to make its first appointment of an assistant secretary in the person of Dr. Jose Angel Bustamante of Cuba who will represent the Association in the South American Countries. Further consideration is being given to the appointment of Assistant Secretaries in other parts of the world.

Council resolved to hold its next meeting in North America in the Spring of 1948—the exact time and place to be decided by the Chairman and Dr. Bauer.

This report which merely attempts to touch upon the highlights of the Paris meeting would be incomplete without a word of thanks and appreciation to our French hosts for their delightful hospitality throughout the week which included a banquet on Thursday night, an official reception at the City Hall, a long-to-be-remembered visit to Versailles with a reception by the Mayor of that city.

Herewith follows a list of the countries from which delegates answered the roll call of the first General Assembly:

Africa	India
Argentine	Iraque
Australia	Ireland (Eire)
Austria	Iceland
Belgium	Italy
Brazil	Luxembourg
Bulgaria	Mexico
Canada	Nicaragua
Chile	Norway
China	Palestine (Arabs)
Colombia	Palestine (Jews)
Costa Rica	Panama
Cuba	Netherlands
Denmark	Peru
Egypt	Poland
Ecuador	Porto Rico
Spain	Portugal
United States	Czechoslovakia
France	San Salvador
Great Britain	Sweden
Greece	Switzerland
Guatemala	Turkey
Honduras	Uruguay
Hungary	Venezuela

THE WORLD HEALTH ORGANIZATION

T. C. Routley, C.B.E., M.D., LL.D., F.R.C.P.[C.]

Toronto, Ont.

The fourth session of the Interim Commission of the World Health Organization was held in the Palais des Nations, Geneva, from August 30 to September 13, 1947. Canada was represented by Dr. G. D. W. Cameron, Deputy Minister of National Health, and Dr. T. C. Routley as delegates, and Dr. M. R. Bow, of Edmonton, Dr. Léon Gérin-Lajoie, of Montreal and Mr. John E. H. Halsted of the Department of External Affairs as advisers. Representatives were present from fourteen of the sixteen member nations, Liberia and Ukraine being absentees.

The main tasks of the Commission may be briefly stated as follows: (1) To complete the organization as provided for in the New York Charter of 1946 and call the first meeting of the General Assembly of the World Health Organization. (2) To arrange for the integration of the former health division of the League of Nations, The Office International d'Hygiene Publique and the Pan American Sanitary Bureau and (or) other sectional health organizations as units of the World Health Organization. (3) To take over the medical residual functions of UNRRA. (4) To provide medical relief and assistance to devastated countries immediately in need of such relief. (5) To set up working machinery for the World Health Organization in harmony with the duties and obligations provided for in the Charter. (6) To co-operate with other bodies,—United Nations, Governmental, International, and non-Governmental in the field of health, as may be indicated.

From the foregoing, it will be observed that the Interim Commission has been engaged in important responsibilities. The Commission has already met four times, once in New York and three times in Geneva, and proposes to hold its fifth meeting in Geneva in January, 1948. The charter provides that, within six months of the ratification of the constitution by

26 United Nations, the first General Assembly of the W.H.O. shall be called. At the moment 17 United Nations have ratified the constitution and it is reported that ratification is pending in a number of other nations. The Commission is of the opinion that the necessary number of ratifications will be in hand for the Assembly to meet some time during the first half of 1948.

Considerable debate took place with respect to the place of meeting. It was finally agreed on a vote that the General Assembly will hold its first meeting on the North American Continent. The Chairman had previously ruled that the Assembly would not be held in a country which had not ratified the constitution. At the moment, the only North American country which has ratified the constitution is Canada, although it is fully expected that the United States of America will ratify at the next session of Congress. The final decision as to time and place of meeting will be made by the Interim Commission when it meets in January next.

Arrangements have been completed for the integration within the W.H.O. of the former health division of the League of Nations and the International d'Hygiene Publique of Paris. In both instances much time was required for detailed consideration of the take-over, involving not only a study of their various functions and the assuming of their many duties, but the arrangement of pensions for the considerable number of staff who had reached the retiring age.

With respect to the integration of the Pan-American Sanitary Bureau, one can only at this time report progress. This Bureau which has been in existence for 40 years and which is reported to have done a splendid piece of work which is appreciated by all the Latin American countries, seems loath to see its identity lost or itself submerged in the W.H.O. until and unless it is assured that the new body will give it the same sense of security and importance, together with a high degree of autonomy, such as it now enjoys. Negotiating Committees have been at work for the past sixteen months and are very hopeful that the two organizations will find it convenient to reach an agreement which will be mutually satisfactory.

With the cessation of the activities of UNRRA a great many residual health functions remained to be assumed and absorbed by other bodies. It seemed appropriate that the W.H.O. should take on such of these tasks as naturally fell within its scope. This has been done and a budget in the sum of $1,500,000 a year has been established for the purpose. Reports from the devastated countries and some of the less highly developed countries would indicate that this service has been well worth while when viewed on humanitarian and economic grounds.

In the field of general activities as falling within the purview of the Charter, the following action has been taken.

1. The setting up of appropriate liaison committees with the United Nations; the United Nations Educational, Scientific and Cultural Organization; the Food and Agriculture Organization; the Inter-national Labour Office; the International Civil Aviation Organization; and the establishment of friendly contacts with a number of other Government and non-Governmental Organizations.

2. The appointment of expert committees to deal with Habit-forming drugs; Venereal Disease; Influenza; Tuberculosis; Malaria; Yellow Fever; Quarantine; and Plague.

3. The consideration of the problem of resettling displaced medical personnel. In this connection, the following statistics are available — and the whole matter is under review.

	Germany		*Austria*						
Category	*U.S. Zone*	*British Zone*	*U.S. Zone*	*British Zone*	*Italy*	*Middle East*	*India*	*Shanghai*	*Total*
Dentists	750	150	15	3	10	..	..	30	958
Physicians and Surgeons	881	413	139	17	45	6	..	111	1,612
Ophthalmologists	24	9	2	2	2	..	..	1	40
Pædiatricians	72	33	1	..	70	..	..	..	176
Nurses, including registered, practical and training	2,077	1,452	not known	not known	246	..	..	..	3,775

4. Publications: Made arrangement for the continuation of a number of the former League of Nations Publications and provided for new publications in order that all important information in the health field may be made available to all member nations throughout the world.

5. Considered and adopted a budget for 1948 in the sum of $1,528,324. One of the Canadian delegates, (Dr. T. C. Routley) served as Chairman of the Budget Committee.

The Commission appointed an observer in the person of Dr. Paul Gregoric to attend the first annual meeting of the World Medical Association in Paris. Friendly, although non-official, relations exist between the W.H.O. and the W.M.A. It is to be hoped that both organizations will find it convenient to co-operate to the degree that the highest possible level of health will be made available to all peoples throughout the world.

London House

London House is situated in Guilford Street, Bloomsbury, and within easy reach of the chief medical centres of London.

Founded by the late Mr. F. C. Goodenough as the Dominion Students' Hall Trust in 1930, its purpose is to provide a Hall of Residence for Dominion students seeking postgraduate education in London. When completed, London House will resemble the plan of an Oxford and Cambridge College. It will house some three hundred residents and also the offices of the Nuffield Trust.

Future Plans

Sir William Goodenough assumed the mantle of his father in 1934, and under his inspiring leadership there has been a remarkable adaptation of that spirit of trusty comradeship, mutual respect and co-operation, which existed between the Home Country and Dominions during the common dangers of war, towards the constructive purposes of peace, by consolidating our common cultural and social ties in terms of higher education. Sir William, with the approval of the Dominions, launched his latest appeal for London House from the Mansion House in 1944. An immediate response was £225,000 from the Nuffield Foundation, and about £170,000 has since been given by donors in this country towards the fund of three-quarters of a million, which is required. The appeal is being extended to the Dominions and strong local committees have been formed in Australia, and South Africa for this purpose, to be

followed by similar arrangements in New Zealand and Canada, as and when the opportunity offers. It is hoped that a generous response from overseas will both swell the stream of their graduates, and hasten the completion of the building.

As a temporary expedient several semi-blitzed houses in the neighbourhood have been taken over and repaired, and some 150 residents, of whom 50% are medical, are being housed. These residents come from every part of the Commonwealth and Empire, and are working at the various arts and sciences. In addition, the Nuffield Foundation has acquired a hostel in Bayswater, which is administered by London House. Here Nuffield scholars from the Dominions and their wives are accommodated, and the Foundation makes provision for sending its scholars from the home country to the various Dominions for special instruction. In this way a two-way traffic is established.

MEDICAL SECTION

In future it is hoped that candidates for London House will be accepted on the recommendation of local committees which it is proposed to establish in each Dominion. Men eligible will be those who are qualified and seek higher degrees or diplomas, or wish to devote a term of study to the various specialties in medicine. It will be realized that not all these men can find accommodation in London House, and additional quarters will be necessary.

The British Medical Association, with its numerous branches and affiliations throughout the Commonwealth, has decided to set up an Empire Medical Advisory Bureau at B.M.A. House. Through this Bureau the Association will concern itself with the cultural and social needs of all doctors coming from overseas, it will help visitors to solve the problems of travel, and give information with regard to postgraduate facilities and courses. In this way, Dominion mothers can feel assured that their sons will be properly cared for. It will be readily realized throughout the Empire how short accommodation is over here, and how large are our commitments for postgraduate study to our own men returning from the Services. In the course of time both these difficulties should be overcome.

Medical men from the Dominions resident in Great Britain have formed a strong and representative Association, which has pledged itself to support London House. This Association gave a dinner to Sir William Goodenough in February of this year, and its members expressed their desire not only to help him with his appeal in their several Dominions, but to aid with their advice men from their old Dominions resident in London House.

CONCLUSION

It is quite obvious that, in the reorganization of nations after this war, here is a scheme which is going to play the most important part in cementing the culture and ideals of our scattered Empire. By their common outlook, medical men can play a leading part in its success. This success can come only from that spirit of good fellowship and esteem which already exists in London House, and has been inspired by that warm appreciation of the rôle which each part of the Empire has played in our combined effort. For South Africans I can only quote the words of their Prime Minister, General Smuts, "Let London House become the monument to our Brothers-in-arms and a symbol and a centre for continued brotherhood in peace. I cannot conceive a more appropriate memorial, or one more welcome to the future generations of young men."

L. R. BROSTER

MEDICAL SOCIETIES

Annual Meeting of Canadian Associaton of Radiologists at Winnipeg, Manitoba, June 24, 1947

The Annual Meeting of the Canadian Association of Radiologists was held in Winnipeg on June 24, 1947, following a dinner at the St. Charles Country Club at which the members of the Association were the guests of Dr. Digby Wheeler and Dr. H. M. Edmison. Forty members were present.

The following officers were elected: Dr. Digby Wheeler, President; Dr. A. C. Singleton, Vice-president; Dr. E. M. Crawford, Honorary Secretary-treasurer.

The Councillors of the various Units are as follows:

British Columbia	—Unit No. 1:	Dr. H. H. Cheney
Alberta	—Unit No. 2:	Dr. P. H. Malcolmson
Saskatchewan	—Unit No. 3:	Dr. E. W. Spencer
Manitoba	—Unit No. 4:	Dr. A. E. Childe
Northern Ontario	—Unit No. 5:	Dr. R. W. McBain
Western Ontario	—Unit No. 6:	Dr. A. E. Broome
Central Ontario	—Unit No. 7:	Dr. E. H. Shannon
Eastern Ontario	—Unit No. 8:	Dr. W. A. Jones
Montreal (French)	—Unit No. 9:	Dr. O. Dufresne
Montreal (English)	—Unit No. 10:	Dr. J. W. McKay
Quebec	—Unit No. 11:	Dr. H. Lapointe
New Brunswick	—Unit No. 12:	Dr. J. A. Hynes
Nova Scotia	—Unit No. 13:	Dr. C. M. Jones

Dr. F. A. Richard of Moncton, New Brunswick, was elected as an Honorary Member of the Association, and the following were made members of the Association: Drs. D. C. Eaglesham, Toronto; Roger M. Hall, Calgary; P. P. Hauch, London, Ontario; F. T. Miles; D. L. McRae, Montreal; H. R. Ripley, Moncton; W. L. Sloan, Vancouver; W. H. Thorleifson, Brandon, Manitoba; L. Ivan Vallée, Montreal.

Those elected as Members-elect were: Drs. A. J. Andrews, Toronto; G. F. Boult, Winnipeg; Paul Emile Côté, Quebec; Jean-Jacques Garneau, Three Rivers; N. L. Hillary, Toronto; R. F. Keevil, Toronto; M. K. Kiernan, Winnipeg; J. G. Stapleton, Hamilton.

Reports were given by the various Units and from a number of the standing committees. An extensive revision is being undertaken of the By-Laws, Rules and Regulations of the Association by a Committee under the chairmanship of Dr. M. M. R. Hall, Toronto. The details of this revision were discussed by the members of the Council at two previous meetings, and the Committee hopes to have this revision in form for publication within the next few months.

The Mid-Winter Session of the Association will be held at Kingston, January 6 and 7, 1948, with a Special General Meeting of the Association held on the afternoon of January 7, 1948. The Council of the Association is to meet on January 5, 1948. Dr. W. A. Jones, Kingston General Hospital, Kingston, is the convener of the committee for the Mid-Winter Session.

La société médicale des hôpitaux universitaires de Québec

Société médicale des hôpitaux universitaires de Québec le 19 septembre, 1947.

UN CAS DE SCLERODERMIE.—L.-N. Larochelle.

En mars 1947, une jeune personne était admise à l'Hôtel-Dieu de Québec pour un syndrôme de sclérodactylie progressive évoluant d'une façon manifeste depuis deux ans. Plusieurs symptômes ayant orienté vers une origine glandulaire, cette pathogénie a été largement discutée. La malade est retournée chez elle avec une médication orale bismuthée en attendant une cure chi-

rurgicale, parathyroicetomie et sympathectomie, toujours possible.

OSTÉOME OSTÉOIDE: CONSIDÉRATIONS CLINIQUES, RADIOLOGIQUES ET PATHOLOGIQUES.—Robert Lessard.

L'auteur présente un cas d'ostéome ostéoide, tumeur osseuse bénigne magistralement décrite par H. L. Jaffe de New York, en 1935 et en 1940. La littérature publiée en rapport avec ce nouveau syndrôme est presqu'exclusivement américaine et concerne jusqu'à date 90 à 95 ans. L'auteur passe ensuite en revue les signes cliniques, les manifestations radiologiques et les caractères anatomo-pathologiques de cette maladie puis il donne l'observation d'un patient porteur d'une telle tumeur.

L'ostéome ostéoide se manifeste chez des sujets jeunes. Le symptôme prédominant est la douleur localisée à l'endroit de la lésion; tenace, elle croît en intensité avec le temps et éveille le malade durant son sommeil. Le cliché radiographique montre une image claire, arrondie ou ovalaire, de petite dimension, représentant la tumeur. L'os adjacent réagit en s'hyperplasiant, en se densifiant. Au microscope, l'ostéome ostéoide est une tumeur petite, formée de tissu ostéoide et d'ostéoblastes, entourée d'un tissu osseux sclérosé, hyperplasié, sans signes inflammatoires.

Le traitement de cette néoplasie en est l'ablation totale qui amène la sédation complète et immédiate des douleurs.

EPITHÉLIOMA DU BASSINET DANS UN REIN EN FER À CHEVAL.—Arthur Bédard.

Après quelques considérations sur la râreté de l'épithélioma du bassinet et du rein en fer à cheval, l'auteur rapporte l'observation d'un malade porteur de cet épithélioma dans un rein en fer à cheval à qui on a fait une héminéphrectomie avec succès. L'auteur conclut à la nécessité de faire une exploration urologique chez tout hématurique en employant la pyélographie rétrograde de préférence à l'urographie intra-veineuse.

TRAITEMENT ET GUERISON DE LA SYPHILIS PAR LE BISMUTH.—Emile Gaumond.

Dix cas de syphilis primo-secondaire traités uniquement par le bismuth sont rapportés. Le B. W. et Kahn étaient fortement positifs chez neuf de ces malades avant le traitement et chez le dixième l'examen sur fond noir a montré la présence de tréponèmes. Tous les malades ont vu disparaître relativement vite leurs accidents cutanéo-muqueux et se négativer leur sérologie rapidement. Le bismuth utilisé seul est capable de guérir la syphilis récente. Une moyenne de neuf mois de traitement, sans tenir compte des périodes de repos, à raison de deux injections par semaine, semble suffisante pour amener la guérison. Les malades ont pu être observés d'un an et demi à neufs ans après le début de leur maladie.

Le bismuth comme traitement de fond associé à la pénicilline comme traitement d'attaque constituera peut-être dans l'avenir le traitement idéal de la syphilis récente et supprimera l'emploi des arsénicaux.

Physicians are often unaware how vast the reservoir of anxiety is and how frail the barriers that keep it back. Their lightest word, even their most efficiently objective report of findings, may do more damage than their medicines do good. This ever-present anxiety, of course, interferes with understanding and is responsible for a great deal of misinformation.—Carl Binger, *The Diplomate*, **19**: 112, 1947.

SPECIAL CORRESPONDENCE

The London Letter

(From our own correspondent)

INTERNATIONAL CONFERENCES

The spate of international conferences which have been held in London this year was brought to an end by the International Conference of Physicians and the Congress of the International Society of Surgery which were held in two consecutive weeks last month. In spite of austerity conditions it is generally agreed that they were both wholly successful.

Much credit is due to the organizers of the two conferences for the skill with which they managed to provide a full program of social activities at which members of the conferences could relax from the strain of what proved to be most intensive series of meetings. Perhaps outstanding among these was the dinner of the physicians' conference which was held in the historic Guildhall and at which Mr. Winston Churchill, who received a tremendous ovation, was the principal guest of the evening.

The surgical congress was more representative than that of the physicians, delegates from more than 40 countries being present, but 29 countries were represented at the physicians' conference. Both fully subserved the main function of such congresses in allowing members from so many countries to meet and discuss matters of mutual interest.

STREPTOMYCIN

Considerable caution is still being maintained by the authorities in assessing the value of streptomycin in the treatment of tuberculosis. For some time carefully controlled clinical trials have been carried out under the ægis of the Medical Research Council. These have been restricted to the treatment of tuberculous meningitis and miliary tuberculosis. The Ministry of Health have now announced that these have proved "sufficiently encouraging" to justify the view that, so far as available supplies of the drug permit, patients suffering from these two conditions should be given the opportunity of receiving treatment with streptomycin.

It is pointed out that, whilst streptomycin is the best drug at present available for the treatment of these conditions, it is too early as yet to say whether it ever produces a permanent cure. One of the major difficulties in carrying out adequate trials is that production of streptomycin in this country is still very limited, and we are almost entirely dependent upon supplies from the United States. Arrangements have been made for a monthly allocation to be made to some of the leading teaching hospitals throughout the country, and it is hoped that the number of beds for which supplies will be available will be 150.

No firm date has yet been officially given as to when reasonable supplies will be available from manufacturers over here, but it is known that several of the leading pharmaceutical companies in this country are pushing ahead with their plans for production on a large scale.

COALMINERS AND MEDICINE

The intense public interest in recent events in the coalmining industry over here, which have attracted considerable attention in the American press, have rather obscured the fact that the problem is by no means a simple one. An article in *The Lancet* provides a salutary reminder that this is not purely an economic and political problem. Coalmining is an industry for which adequate and coordinated medical services have never been universally available, and in addition there are social aspects which have too long been overlooked. Mining communities have all too often been isolated villages with few social amenities and a standard of housing of which no country could be proud. As the writer of *The Lancet* article puts it, "the pattern of the miners' history in

the twenty years between the wars was made up of the related and interacting elements of low living standards, ill health, conflict, and withdrawal''. Elsewhere Dr. H. M. Vernon, a former distinguished member of the Industrial Health Research Board, has pointed out that there is ample evidence available to support the view of the miners that the extra work being assigned to them is too heavy for the older men.

The Control of the Tsetse Fly

The Government's plans for the development of food growing in tropical Africa have lent an enhanced interest to a lecture given in London last month by Dr. P. J. Du Toit, Director of Veterinary Services in the Union of South Africa. This dealt with an experiment which his department has been carrying out for the elimination of the tsetse fly in South Africa. By means of aeroplanes the affected areas have been sprayed with D.D.T. The initial results have been most promising, counts of 600 tsetse flies being reduced to counts of three after spraying. As various speakers pointed out in the subsequent discussion, the problem of the tsetse fly is far from simple and varies considerably in different parts of the continent, but if the preliminary South African findings are confirmed, they represent a very real contribution to what is generally recognized to be one of the major problems in the full development of the potential wealth of tropical Africa.

Links with the Past

For the older generation memories of the heyday of British cardiology will be recalled by two recent announcements in the press. The one is of the death on September 15, in her 83rd year, of Lady Mackenzie, the widow of Sir James Mackenzie. The other is the announcement that Mrs. L. J. Gibson, the widow of Dr. G. A. Gibson, received royal congratulations on reaching her 100th birthday on September 30. Different though they were in many respects, G. A. Gibson and Mackenzie will long be regarded as two of the giants of cardiology. Mackenzie's was a more dramatic career—the Scottish general practitioner from Lancashire who took London by storm and against every odd established himself as the leading cardiologist in the country. Gibson pursued a more conventional path as an Edinburgh consultant, but his contribution to his specialty was no less fundamental. The records of both have stood the acid test of time, but in these days of atomic energy, international disturbances and threatened world famine, it seems a far call to those early days of the century.

WILLIAM A. R. THOMSON

London, October 1947.

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ABSTRACTS FROM CURRENT LITERATURE

Medicine

Concentrated Aqueous Heparin. A New Form of Intramuscular Administration. Stats, D. and Neuhof, H.: *Am. J. M. Sc.*, **214:** 159, 1947.

In an attempt to simplify the giving of heparin these authors tried its intramuscular administration in a concentrated solution of 100 mgm. per c.c. given every 8 or 12 hours. The dosage used was 100 mgm. every 8 hours or 120 to 140 mgm. every 12 hours. They admit to some uncertainty as to the precise dosage but suggest these amounts, adding that in heavy individuals larger doses may be required. The suggested dosage for patients over 170 lb., is 1 mgm. of heparin per pound as the initial injection followed by 0.5 to 0.7 mgm. per pound at 8 hour intervals. The maximum daily amount should not exceed 450 mgm. The administration of a single dose of the preparation causes prolongation of the coagulation time to appear one-half to one hour later, the maximum effect being 4 to 6 hours after the injection when the coagulation time rises to between 25 and 60 minutes. In a chart shown the figures in a 36-hour observation ranged between 25 and 40 minutes in a patient given 100 mgm. every 8 hours.

To date 115 cases have received this method of treatment without untoward effect and with satisfactory results. Local reactions are rare and not severe and some patients have been carried on heparin for 3 weeks by this method. In postoperative cases, bleeding at the site of operation occurred if the administration started earlier than 48 hours after operation. The cases in the series were both medical and surgical and unselected and many were included who were in a poor state of nutrition. Other medication was continued without regard to the heparin and in 10 cases dicoumarol was given concurrently until the prothrombin time indicated that the heparin might be stopped. In controlling the dosage coagulation times are done prior to each injection and the amount subsequently given varied according to the finding. If the figure is between normal and 24 minutes the previous dosage is maintained, if it is above that a smaller dose is given or the injection postponed for 2 hours.

The ease of the method and its freedom in these authors' hands of untoward event commends it for further trial.

G. A. COPPING

A Review of Chronic Intermittent Juvenile Jaundice. Meulengracht, E.: *Quart J. Med.*, **16:** 83, 1947.

Chronic intermittent juvenile jaundice was first described by the author and consists of slight jaundice, at times distinctly visible, at other times only present as bilirubinæmia, and having only one real symptom consisting of lassitude during the periods when the jaundice is most in evidence. The disease particularly affects young persons, sometimes occurs in families, is benign in nature and gradually becomes less intense as years pass.

Physical examination reveals nothing significant. There is no evidence of any hæmolytic process and liver function tests show nothing suggestive of liver damage. In cases where liver biopsy has been performed nothing more significant than slight fatty infiltration has been discovered. Alcohol, lack of sleep, overwork and emotional upsets apparently aggravate the condition.

The pathogenesis of the jaundice is unknown and it is even uncertain that it primarily originates in the liver since this organ reacts with slight jaundice to many different influences. There is no direct therapy, the most important factor in treatment being the correct diagnosis and the reassurance of the patient. In addition, ample rest and avoidance of other possible aggravating factors should be recommended.

The literature is reviewed by the author and his material presented, which consists of 35 cases followed for periods of from one to 36 years.

NORMAN A. SKINNER

Reiter's Syndrome. Pinck, B. D.: *Am. J. M. Sc.*, **213:** 76, 1947.

This paper reviews 12 cases of this syndrome of purulent conjunctivitis, polyarthritis and urethritis and makes some general comments on the disease. The most frequent sequence of events was the appearance of urethritis followed by the eye and the joint features in that order. The joint involvement was always sudden, with acutely inflamed joints (usually multiple) accompanied by sudden rise of temperature and leucocytosis. The knees and ankles were the joints most frequently involved.

The disease usually took a month to develop its full features. The temperature was short-lived but the total course was at least three months. There is occasional relapse in these cases, sometimes years later. There is usually no destruction of joint or eye structures though this occasionally occurs. In the differential diagnosis from gonorrhœal urethritis with conjunctival and joint involvement, the negative smears and cultures from the discharges with the lower fever and the freedom from functional derangement in the affected joints favour Reiter's syndrome. There is no specific therapy of value. The etiology is not known.

G. A. COPPING

Observations on a Family Epidemic of Infectious Hepatitis. Kunkel, H. G. and Hoagland, C. L.: *New England J. Med.*, **236:** 891, 1947.

A careful study of an outbreak of infectious hepatitis, involving 9 or 10 children of a family, is worthy of note from several points of view. Spread of the disease appeared definitely due to contact and the incubation period was about 27 days. The parents and one child were not evidently infected. Six patients did not show clinical jaundice but liver function tests showed definite evidence of hepatitis. The disease was milder in the younger children.

The thymol turbidity test proved of particular value in detecting hepatitis since it remained positive for a much longer period than the existence of hyperbilirubinæmia or increased bromsulphalein retention.

Of particular interest was the presence of spider angiomata. These were present in 5 cases and were of sudden appearance and gradual disappearance. It is suggested that spider angiomata are much more common with acute hepatitis than has been appreciated and are of definite value in the diagnosis of subclinical cases.

NORMAN S. SKINNER

The Effect of Restricted Intake of Carotene and Vitamin A on Psoriasis Vulgaris. Hoffmann, R., Lorenzen, E. J. and Garfinkel, A. S.: *New England J. Med.*, **236:** 933, 1947.

In the skin of the psoriatic patient the mechanism of keratinization fails whenever increased demands on the protective and reparative processes of the epidermis occur. Instead of completely keratinized cells defectively cornified ones are produced (parakeratosis). Careful sun treatment, local application of tar, sulphur, chrysarobin and internal administration of inorganic arsenic are beneficial since they all have a distinct keratoplastic effect. A low-fat diet also has received favourable recognition in the treatment of psoriasis.

Since a defect in the reactive process of keratinization seems to be essential in the causation of psoriasis and since keratoplasia is observed in vitamin A deficiency the authors suspected that the improvement resulting from a low-fat diet was due to deficient intake of vitamin A. Eleven patients were placed on a diet low in carotene and vitamin A and in 9 cases the psoriatic lesions markedly improved or completely cleared within 8 to 40 weeks.

While the authors consider that a diet low in carotene and vitamin A is markedly beneficial in the treatment of psoriasis they do not consider it to be a practical therapeutic regimen but one which affords an opportunity for further investigation of the metabolic aspects of the disease.

NORMAN S. SKINNER

Surgery

Fat Necrosis of the Female Breast. Adair, F. E. and Munzer, J. T.: *Am. J. Surg.*, **74:** 117, 1947.

One of the authors of the original description of this clinical entity in 1920, takes part in discussing the lessons learned in 110 cases. The clinical picture is often very like carcinoma of the breast in that the lump may be painless and may be attached to skin.

It is recommended that the word "traumatic" be dropped from the name of the disease and that it be called "fat necrosis of the breast". It is true that trauma, accidental or surgical, is the single most important etiological factor, but this accounts for only 40% of the cases in the series. Aside from history and presence of ecchymosis, the clinical and pathological picture is identical when the lesion is not associated with trauma. There is no relation to constitutional type, though fat necrosis is somewhat more frequent in the obese. Weber-Christian disease (relapsing febrile nodular non-suppurative panniculitis) shows a picture indistinguishable from fat necrosis. The lump is attached to the skin in 60% of the cases. In only 20% was the correct diagnosis suggested by the history and physical signs.

Gross and microscopic examination of the excised tissue is necessary to make a positive diagnosis. Aspiration biopsy with follow-up to see that the mass recedes within a reasonable time is the favoured procedure. It is not uncommon for the axillary glands to be palpably enlarged with fat necrosis.

It is emphasized that the mutilation of a radical mastectomy should not be practised until the presence of a malignant tumour has been proved.

BURNS PLEWES

Renal Anoxia and the Traumatic Uræmia Syndrome. Darmady, E. M.: *Brit. J. Surg.*, **34:** 262, 1947.

Out of 10,000 wounded, too severely injured to travel further than this R.A.F. casualty clearing station in England, there were 44 deaths, of which 12 were directly due to renal failure. Five cases of uræmia were recognized clinically and recovered.

The syndrome occurs in the severely wounded who have suffered considerable loss of blood and shock. In most, prolonged hypotension was recorded. Severe crushing of muscle, marked dehydration and transfusion reactions were uncommon, but injury to great vessels and fractures of long bones was present. Symptoms were noted first on the second to sixth day after injury: anoxæmia, hiccup, followed by vomiting, drowsiness, attacks of hallucination. Cyanosis anæmia and oliguria were common. Anuria occurred once. In those that recovered, dramatic improvement took place about the sixth to eighth day. The blood urea is raised in most of the severely wounded, but is much higher (over 50 mgm. %). When first taken in, those who developed the uræmia syndrome later developed blood ureas of even over 400 mgm. %. Oliguria depends on the fluid intake and the urinary urea remains between 1.8 and 2.1 mgm. %. There is acidosis and also hypochoræmia.

Autopsies showed frequent fat embolism and ventricular failure. The kidneys showed eversion of the cut edges, a yellow glistening texture of the cortex and cyanosis. Microscopically, the liver showed central vein necrosis, and the kidneys showed tubular necrosis with little glomerular alteration, casts in the loops of Henle, and tubulovenous ruptures with venous thrombi.

The rôle of vasospasm in causing the renal anoxia is discussed. There are dangers in over-alkalinization, and even in severe alkalosis the urine may remain acid. Cor-

rection of salt deficiency is deemed important, but a low alkali reserve and low blood chlorides are found in wounded men who do not develop uræmia. It is suggested that splanchnic block may be beneficial, but the few successful cases are deemed insufficient for a definite conclusion. BURNS PLEWES

The Diagnosis of Abdominal Trauma in Warfare. Rob, C. G.: *Surg., Gyn. & Obst.*, **85**: 147, 1947.

The importance of making a sound clinical diagnosis before deciding to explore the wounded abdomen, is emphasized by this 1946 Hunterian Lecture. It is demonstrated that laparotomy contributed greatly to the deathrate when no visceral lesion, or merely liver or kidney wounds were formed. Of the 172 cases studied, 4% were dead or moribund on admission. Over half had other wounds. There were 39 deaths in the 113 operated upon, and only 1 death among the 53 not operated on. In only 1 of the 34 patients with wounds of the liver was operation necessary for the control of hæmorrhage. Of the 22 with renal wounds, only 3 required nephrectomy. Experience showed that dehydration is marked in abdominal wounds, resuscitation is slow and the abdomens of soldiers who are fighting fit show high muscle tone normally.

Clinically, besides rigidity, tenderness, absence of breathing movements and peristaltic sounds, visualization of the wound track by taking into account the position of the body when struck, rectal examination, catheterization, and the findings at wound excision determine the need for laparotomy. The absence of peristaltic signs is a positive indication for laparotomy, but their presence is only a valuable guide toward conservative treatment. Extraperitoneal hæmatoma creates difficulties in diagnosis and often must be explored. Buttock wounds penetrating the peritoneal cavity result in a high mortality, but x-ray examinations, proctoscopy, abdominal signs help in an accurate diagnosis as to whether a hollow viscus has been entered. The value of plasma administration in late peritonitis is emphasized.

In contrast to civil practice, abdominal pain was much less often a major complaint, rigidity was an unsafe sign, absence of liver dullness was of no value, vomiting may occur in all wounds so was not a valued sign unless it contained blood. BURNS PLEWES

Traumatic Rupture of the Liver Without Penetrating Wounds. Wright, L. T. *et al.*: *Arch. Surg.*, **54**: 613, 1947.

This article is a review of 32 cases of traumatic rupture of the liver without penetrating wounds studied by the authors at the Harlem Hospital during a ten year period. There is a tendency of the liver to split and crack in more or less a stellate manner with considerable hæmorrhage and escape of bile. The right lobe is not infrequently split and is usually the site of central ruptures. The amount of blood in the abdominal cavity or under the capsule in rupture of the liver is usually moderate or large in amount. The term "moderate" used by the authors denotes 200 to 500 c.c. of blood, below that figure "small" and above it, "large".

In 10 of the 32 instances there were no associated lesions. In the remaining 22 patients, severe associated lesions were present including lacerations of the brain and spinal cord and ruptured spleen. Each occurred five times. The authors classify four clinical types: (1) Massive hæmorrhage with sudden death. (2) Acute hæmorrhage with early development of shock. (3) Repeated small hæmorrhages. (4) Spontaneous cure.

The diagnosis of rupture of the liver without penetrating wound in the uncomplicated case is difficult. The signs are chiefly hæmorrhage, shock and peritoneal and diaphragmatic irritation. Abdominal pain is the commonest complaint. Vomiting occurs not infrequently. Twenty-two per cent of all patients entered the hospital with a systolic blood pressure below 90 mm. of mercury. Repeated blood cell counts and hæmatocrit determinations should be done in all cases. The abdominal tap, performed with a spinal needle in all four abdominal quadrants, as well as peritoneoscopy are invaluable as aids in the diagnosis of rupture of abdominal viscera without penetrating wounds. Operative intervention is imperative and delay increases the operative risk and the probability of infection.

Spinal anæsthesia is to be avoided because there may be associated lesions of the intestinal tract. Shock must be combated in the usual manner and large quantities of blood given before, during, and after operation by the slow drip method. During operation the use of fibrin foam, oxidizable cellulose gauze or "gelfoam" which are the new methods for the control of hæmorrhage, are worthy of extensive trial in these cases.

In the authors' series of 32 cases, 6 patients lived. The gross mortality was 81.3% due to the large number of associated lesions. Fifteen patients were operated on for rupture of the liver and nine died: 17 were not operated on and all died. G. E. LEARMONTH

Obstetrics and Gynæcology

The Influence of Semen on the Female Reproductive Organs. Green-Armytage, V. B., Silberstein, F. and Wachtel, G. E.: *J. Obst. & Gyn. Brit. Emp.*, **54**: 324, 1947.

Semen injections have a follicle-stimulating effect upon the ovaries of immature animals; sometimes the injection has a dual effect by stimulating some follicles and retarding others. Seminal injections cause uterine horns to grow in length and in some instances glandular hyperplasia and œdema of the uterine mucosa are seen.

Positive results were obtained in 53% when human semen from sterility clinics was used, while freshly collected homologous animal sperm yielded 70% of positive results. P. J. KEARNS

Studies in Prematurity, Stillbirth and Neonatal Deaths. Drillien, C. M.: *J. Obst. & Gyn. Brit. Emp.*, **54**: 300, 1947.

A statistical analysis has been made of nearly 8,000 births in the Simpson's Memorial Hospital, during the years 1943 to 1945 inclusive. The prematurity rate among all primiparæ was 8.6% and 5.9% when emergency cases, illegitimate births and multiple births were eliminated. The survival rate was closely related to the birth weight, wastage decreasing from 100% for babies under 2 lb. 9 oz. to about 3% for babies over 6 lb.

In complications of the pregnancy itself, the prematurity rates were: toxæmias 15.6%; antepartum hæmorrhage 34.3%; hydramnios 37.8%. The most common chronic diseases coincident with pregnancy were cardiac disease, syphilis and anæmia. For mothers with chronic conditions the prematurity rate was 10.2%. The increased rate of wastage here was due to decrease in birth weight. P. J. KEARNS

The Familial Incidence of Adrenal Hypertrophy and Female Pseudohermaphroditism. Biggs, R. and Rose, E.: *J. Obst. & Gyn. Brit. Emp.*, **54**: 369, 1947.

Two cases of female pseudohermaphroditism associated with adrenal hypertrophy and occurring in the same family are reported. The primary defect is probably adrenal hypertrophy, for a similar hypertrophy in the male may be associated with precocious bodily and sexual development. The defect may be familial in that more than one member of a single generation may be involved. Nine families are recorded in which two sisters were pseudohermaphrodites and in four families both males and females were affected. P. J. KEARNS

The Cause of Polar Lie. Stabler, F.: *J. Obst. & Gyn. Brit. Emp.*, **54**: 345, 1947.

Fetal leg movements tend to turn the fetus end for end. The narrow lower pole of the uterus together with the presence of the pelvic brim makes fetal turning easy of achievement if the legs are flexed with the breech lowermost. The wide soft upper pole of the uterus makes turning difficult if the legs are flexed with the

breech uppermost. As a result therefore most fetuses present by the vertex. If the legs are extended the mechanism is reversed and breech presentation is more likely to occur. P. J. KEARNS

A Fatal Case of Primary Diphtheria of the Cervix and Urethra. Bottomley, J.: *J. Obst. & Gyn. Brit. Emp.*, **54:** 375, 1947.

The route of infection in a primary case of genital diphtheria is a matter for speculation, but it appears possible that it may sometimes be transported by sexual intercourse. There is a wide range of opinion about the severity of such a lesion. The main feature to be remembered is the severe toxæmic effects in face of what looks like a mild clinical lesion on the cervix. There are sufficient number of fatal cases reported to consider the lesion very serious and dangerous.

P. J. KEARNS

Chronic Hypertension and Pregnancy. Browne, F. J.: *Brit. M. J.*, **2:** 283, 1947.

Chronic hypertension constitutes about 25% of all cases of toxæmia of pregnancy. It must be differentiated from chronic nephritis and pre-eclamptic toxæmia. In the chronic hypertensive the blood pressure tends to fall to a normal level in the second three months of pregnancy. It may or may not rise again in the later weeks. If the systolic blood pressure rises above 160 mm. Hg. albumin is likely to appear in the urine and the fetus to die *in utero*. The reasons for these occurrences and the relation between them are discussed.

Except in the more severe cases, with signs of renal involvement, retinal arteriosclerosis, exudates or papill-œdema, there is no need to terminate pregnancy in the early weeks. If the pregnancy is allowed to continue treatment should aim at keeping the blood pressure below the danger level of 160 mm. Hg. For this the best agent is rest, if necessary in bed. With careful supervision most patients with chronic hypertension go to term and deliver themselves spontaneously of living infants. In those patients in whom the pregnancy is allowed to continue the outlook for a successful pregnancy chiefly on the height of the blood pressure at the beginning of pregnancy. If it is over 150/100 only about 33% give birth to viable infants. The incidence of pre-eclamptic toxæmia is about seven times, and of eclampsia ten times, that in women who are normal at the start of pregnancy. There is no reason to believe that the hypertension is permanently aggravated by the pregnancy. ROSS MITCHELL

Iodine and Failing Lactation. Robinson, M.: *Brit. M. J.*, **2:** 126, 1947.

Failure to establish a satisfactory milk output in women is apparently due to two deficiencies—œstrogens and iodine. The need for œstrogens to control the milk flow is present in the first four days about labour; the need for iodine to increase the output of milk present from the fourth day onward. These deficiencies may be present singly or together.

Twenty cases of failure to establish lactation in the puerperium were treated with Lugol's solution. The mean output per day increased by 300%. One-third of a small number of failures of lactation in mothers with older infants have responded to Lugol's solution.

ROSS MITCHELL

Aspects of Human Infertility. Sharman, A.: *Brit. M. J.*, **2:** 83, 1947.

The examination of the endometrium in a consecutive series of 1,898 cases of primary sterility has shown unsuspected tuberculosis in 100 (5.3%). This finding suggested the possibility that tubal tuberculosis of a degree not sufficient to be grossly recognizable except on laparotomy might be responsible for a much greater number of cases of tubal non-patency than is generally recognized. There is very little positive proof that, apart from gross tubal damage, gonococcal salpingitis is a common cause of tubal occlusion.

Impermeability of the tubes is seldom a congenital defect. Minor degrees of uterine hypoplasia have but little relation to infertility and are purely an incidental finding. It is quite different with major degrees, often associated with narrow vaginal introitus and canal, which are uncommon but which seriously affect the fertility prognosis.

Since endometrial tuberculosis is almost invariably secondary to tuberculous infection of the tube, it is highly probable that subclinical tubal tuberculosis is present in at least 5.3% of sterile women.

The incidence of tubal blockage was found to be 61.8%. This contrasts with an incidence of 26.2% over the total series of 1,478 sterile women, including those in whom endometrial tuberculosis was present.

ROSS MITCHELL

Pædiatrics

Familial Hypoplastic Anæmia of Childhood. Estren, S. and Dameshek, W.: *Am. J. Dis. Children*, **73:** 671, 1947.

This particular type of anæmia is not hæmolytic, but as the names indicates hypoplastic. There is a hyperchromic anæmia, leukopenia, thrombopenia, hæmorrhagic diatheses, generalized pigmentation of the skin, hypoplastic bone marrow. Some isolated cases have been reported, and a few families have been recorded in which more than one child has been affected. Thus, in one family, there were 3 affected brothers; in another brother and sister; in a third, two brothers and a first cousin; in a fourth, 2 brothers out of a family of 5. These authors record two families, both French Canadian, living in the States. In the first there were 6 children of whom 3, 2 girls and a boy had the disease. The two girls had died at the age of 10 years of anæmia; the boy, the last child in the family was the patient. In the second family there had been 17 pregnancies, 3 of which had ended in spontaneous abortions. Four others, 3 girls and a boy had died at the ages of 8, 9, 8, 8 years respectively. The fifth in the family was a boy who was brought in as a small lad, had his spleen removed, and is alive at the age of 13, longer than any of his affected sibs had lived. Although splenectomy had not affected the blood picture to any extent, except for the increase in the number of platelets, the child's condition had improved, so that he was still living.

Note: This appearance of a condition in several sibs in a family, when the parents were normal suggests recessive inheritance. Although no consanguinity between the parents in either family was mentioned, the fact that they were French Canadians, living in Maine and Massachusetts, in which they probably tended to mate with others of the same nationality, may easily have provided for a degree of relationship between the parents in each family, perhaps without their knowing of the relationship.

MADGE THURLOW MACKLIN

Neurology

On the Etiology of Dementia Præcox. Bellak, L. and Willson, E.: *J. Nerv. Ment. Dis.*, **105:** 1, 1947.

The literature of the past ten years concerned with the problem of the etiology of dementia præcox is presented. One is impressed with the wide variety of etiological factors reported. The authors feel that dementia præcox or schizophrenia is not a disease entity but a syndrome or a reaction-type associated with a large variety of etiological factors. The best common denominator that they could find for the syndrome was to call it a "deficit reaction" by which they meant that it is typical of a human organism incapable of adequate social functioning.

The etiological factors may range from a hypothetically completely psychogenic nature to a hypothetically completely organic nature. They felt that

a definite predisposition might be of importance in the etiology of the schizophrenic reaction type, and that these predispositions might be of a constitutional nature, somatically speaking or socio-psychologically speaking. However each case must be understood as an interaction between somatic and socio-psychological predisposition, and of a precipitating factor on the continuum between complete psychogenicity and complete organicity.

It was suggested that each case be considered on the following four dimensional schemes, namely: (*a*) somatic predisposition; (*b*) socio-psychological predisposition; (*c*) psychological precipitating causes and (*d*) somatic precipitating causes. It was felt that such a scheme would help further research on the etiology of this disease. PRESTON ROBB

Effect of Denervation on Fasciculations in Human Muscle. Forster, F. M., Borkowski, W. J. and Alpers, B. J.: *Arch. Neurol. & Psychiat.*, **56:** 276, 1946.

Forster and Alpers previously presented evidence to the effect that fasciculations in voluntary muscle had their site of origin not in the anterior horn cell, but at the myoneural junction. This evidence was based on pharmacological block of appropriate peripheral nerves, and demonstrating continued fasciculations. As there were certain criticisms to this work, repeated studies were made following section of the motor nerve supply. Fasciculations continued to be present for a time after denervation of the fasciculating muscle. They feel that fasciculations, like fibrillations, originate at the myoneural junction. Fasciculations and fibrillations probably represent the same phenomenon, the only difference being that fasciculations are synchronized fibrillations occurring in the same motor unit. The decrease of fasciculations about four days after denervation correlates with the anatomical changes in the peripheral nerve stump.

Fibrillations are probably synchronized into fasciculations by antidromic impulses from the myoneural junction, and firing in axon reflex fashion. The disappearance of fasciculations is due to destruction of the synchronizing pathway when the peripheral stump degenerates. PRESTON ROBB

Neuropsychiatric Manifestations During the Course of Malaria. Boshes, B.: *Arch. Neurol. & Psychiat.*, **58:** 14, 1947.

This article is a timely reminder of the protean manifestations of malaria. So many numbers of our armed forces were in malaria infested areas, that we may see further cases of it. In the Mediterranean campaign, neuropsychiatric complications simulating meningitis, encephalitis, epilepsy, cerebral tumour, vascular lesions and psychiatric disorders were encountered. "Cerebral" forms of malaria were not limited to the disease caused by *P. falciparum*, but *P. vivax* and mixed infections produced these pictures. An interesting case is presented. PRESTON ROBB

Dermatology

The Cytologic Effects of Podophyllin. Sullivan, B. J. and Wechsler, H. I.: *Science*, **105:** 433, 1947.

Similar clinical effects have been observed following the use of podophyllin and colchicum in condyloma acuminatum. Histological examination revealed an alteration of nuclear pattern and "colchicum figures," and this prompted an investigation of the cytologic effects of podophyllin. This study was made on the meristematic tissue of root tips of *Allium Cepa*. The spindle mechanism of the nuclei of the cells of the growing tip was impaired by effects produced in late prophase, since there was no orientation of the chromosomes on the mataphase plate, and the chromosomes were dispersed in the cell. This effect was comparable to that produced by colchicum. A notable effect of podophyllin was to increase the number of mitotic figures up to the metaphase, with decrease, and, later, complete absence of anaphase and telophase figures. D. E. H. CLEVELAND

Benadryl in the Treatment of Certain Diseases of the Skin. O'Leary, P. and Farber, E. M.: *J. Am. M. Ass.*, **134:** 1010, 1947.

The authors have administered benadryl (beta-dimethyl amino-ethyl benzohydryl ether hydrochloride) to a large group of patients having dermatoses characterized by cutaneous œdema, such as urticaria, acute or early scleroderma and atopic dermatitis. In acute urticaria, as observed following the injection of a biologic product, the ingestion of foods or drugs benadryl usually relieves the pruritus in 20 to 60 minutes and reduction of the swelling follows in 2 to 6 hours. It was given by mouth in doses of 50 to 100 mgm. every 3 to 4 hours in 35 patients with acute urticaria. Twenty were relieved in one or two days. Twelve were improved with recession of pruritus and reduction in size and number of wheals. Three were not benefited. Side reactions, not severe enough to warrant discontinuance of the drug, occurred in 10 patients. In chronic urticaria, the cause of which in most cases remains unsolved, and the treatment of which is empiric and generally ineffective, 75 patients were given benadryl, 48 were entirely relieved while taking benadryl, 17 were improved and 10 were not benefited, 25 exhibited side reactions but in only 8 were these sufficiently severe to justify discontinuance of the drug. Interesting observations are that benadryl apparently has a wide measure of safety and can be taken for many successive months without harm; also that it is just as effective in the 4th or 5th month as in the 1st month of the disease. In atopic dermatitis benadryl was used only as an adjunct to other methods of treatment, and therefore results were difficult to evaluate. In 8 out of 25 cases it relieved severe paroxysms of itching, but no other benefits were observed. It was also shown that benadryl is not an effective antipruritic as indicated in its trial in a considerable list of patients itching from various causes. Suppression of cutaneous œdema in the œdematous phase of scleroderma produced temporary improvement. Side reactions usually tended to diminish in severity and disappear entirely after several weeks of the drug. It is recommended that in the treatment of urticaria and allied dermatoses the dosage should start at 50 mgm. three times daily, this amount gradually being increased until the minimal maintenance dose has been determined. The prompt reappearance of urticaria on discontinuance of the drug indicates that apparently there is no cumulative action, and there is no evidence that it is habit-forming. In view of the occasional severity of side-reactions however the indiscriminate use of the drug is to be discouraged. D. E. H. CLEVELAND

On Penicillin Therapy. MacKenna, R. M. B.: *Brit. J. Dermat. & Syph.*, **59:** 239, 1947.

The author reviews the history of the use of penicillin in treatment of skin infections, with special reference to impetigo. Certain problems in the pathogenesis of superficial skin infections have received emphasis on studying their behaviour under penicillin therapy. It had previously been observed that when impetigo was successfully treated with micro-crystalline sulfathiazole, in many cases pathogenic micro-organisms could still be found at the site of healed lesions. From subsequent studies it appeared that Koch's postulates could be fulfilled in this disease only when a "factor X" was present in the skin, a factor thought probably to be inanimate. Persistence of pathogenic bacteria on the site of healed lesions, and from healthy skin, nostrils and throats of patients with active lesions on the cheeks, was similarly observed in the use of penicillin. It was concluded that success or failure of therapy could not be connected with the organisms isolated, nor in most cases with the presence or development of penicillin-resistant strains. It has further been shown that certain long-chain fatty acids, lethal to pyogenic organisms, are

normally present in the skin, its appendages and secretions. The lack or absence or alteration of these acids may constitute the "factor X" referred to. It is suggested that the seborrhœic state may be one in which the long-chain fatty acids are abnormal and this may help to explain the vulnerability of the skin in such a state, and be a step in the direction of explaining the response to penicillin. Further understanding of such problems may be advanced by accurate observation and appraisal of the value of penicillin in the conditions which it benefits. The proper use of antibiotics in turn demands meticulous accuracy in diagnosis and a full knowledge of their potentialities and limitations, and correct methods of their use. The value of penicillin in dermatology is proportionate to the dermatological ability of the prescriber. D. E. H. CLEVELAND

Anæsthesia

Problems Encountered with Administration of Curare in Anæsthesia. Hudon, F. and Beaudoin, R. A.: *Current Researches in Anæsthesia and Analgesia*, **26:** 164, 1947.

The authors have no intention of minimizing the value of curare in anæsthesia but it is their opinion that in the hands of inexperienced anæsthetists it can have ill effects on the anæsthetized patient and even cause serious accidents. The most common incident encountered is respiratory arrest by muscular paralysis. This must be anticipated even before the curare is injected and provision should be made for giving artificial respiration under positive pressure (*artificial respiration by external pressure is of no avail because the muscles have lost their tone*). Intocostrin (curare) must be given by fractional methods bronchospasm and laryngospasm. These latter complications are averted by using atropine or scopolamine preoperatively. The authors warn against the danger of distension of the stomach while administering anæsthetic gases and the undetected backing up of its liquid contents back into the pharynx or even into the trachea while the glottis is relaxed due to the curare. For this reason intratracheal intubation is advisable and at times even obligatory.

The question arises as to whether curare can cause a fall in blood pressure and shock. They agree with everyone that in most cases, curare by permitting a lighter level of anæsthesia in abdominal surgery aids in the prevention of shock. However if curare is administered towards the end of an operation to a patient in imminent shock during cyclopropane, this shock will be aggravated because, respiration and muscular tone being diminished, the venous circulation is slowed down. Furthermore, if positive pressure respiration has to be used, increased intrapulmonary pressure may further retard the flow of blood into the right auricle and increase the stagnation of blood in the peripheral circulation. It would seem then that an untimely administration of curare may accentuate falling blood pressure already begun, or indirectly cause a fall in blood pressure in a patient in imminent shock.

In general however the authors feel that complications due directly to curare are, in the hands of experienced anæsthetists, practically non-existent. It is in the hands of the inexperienced anæsthetists that these complications following curare may prove fatal. F. A. H. WILKINSON

Pathology

A Search for Carcinogenic Substances in Carcinomatous Human Lungs. Steiner, P. E., Stanger, D. W. and Bolyard, M. N.: *Arch. Path.*, **43:** 590, 1947.

The experimental injection of 62 nonsaponifiable lipid extracts of 106 human lungs did not demonstrate the presence of an exogenous factor capable of inducing carcinoma or sarcoma in mice. However, a sarcomatous tumour was induced at the site of injection in mice by four of the extracts. These were obtained from (*a*) a non-tumourous lung opposite a lung with primary carcinoma, (*b*) from the cancerous lungs of a patient with carcinoma of the prostate, (*c*) from the lungs of a patient with hypertension and (*d*) from the pooled lungs of stillborn infants. The last, in the opinion of the authors, is suggestive of the presence of an endogenous factor present in the lungs at birth.

The failure to demonstrate any exogenous carcinogenic factor in the lungs does not, however, prove its absence, since it is known that such substances may act in high dilution and it is possible that the method of extraction employed either was not sensitive enough to detect a minute quantity of the carcinogenic substance or may have changed it to an inactive state.

Three of the sarcomagenic extracts were obtained from the lungs of patients who had two features in common, *viz.* all were men and all had prostatic disease, one carcinoma and the other two benign adenoma. The significance of this feature, if it is significant, is not explained by the authors, who mention vaguely the possibility of some endocrine relationship. W. B. LEACH

Rôle of Lymphatic Vessels in the Transmission of Lipase in Disseminated Pancreatic Fat Necrosis. Perry, III, T. T.: *Arch. Path.*, **43:** 456, 1947.

The hypothetical transmission of lipase by the abdominal lymphatic vessels as the causative mechanism in the production of disseminated pancreatic fat necrosis in cases of pancreatic injury or disease is supported by the author's experiments. The intraperitoneal injection of a mixture of pancreatin and finely divided graphite produces lesions closely resembling those seen in human pancreatic fat necrosis and also outlines the abdominal and thoracic lymph channels. Study revealed a close association between the areas of fat necrosis and the lymphatic vessels. This association exists both in the abdominal and thoracic cavities. The latter relationship would explain the presence of areas of fat necrosis involving the mediastinal, subpleural and subpericardial regions sometimes seen in cases of pancreatitis.

Included in the paper is the report of a case of disseminated pancreatic fat necrosis associated with an area of hæmorrhagic necrosis in the head of the pancreas. The distribution of the lesions in the abdomen and on the pleural surfaces resembled that produced experimentally. In one instance an area of necrosis was seen definitely associated with the perivascular lymphatics. W. B. LEACH

Industrial Medicine

Industry's Toothache. Goldhorn, E.: *Indust. Med.*, **16:** 140, 1947.

A modern industrial health program serves industry and the worker by manifesting a broad understanding of and by providing for, all phases of the health problem as it affects or is affected by the numerous and complex present-day industrial processes. In this article an industrial dentist explains the indispensability of emergency dental care in the industrial health program, if time loss, work stoppage, and the accident potential are to be minimized. Certain occupational disease processes have oral manifestations. These processes could be controlled if not eliminated, by proper dental supervision and the collaboration of the dentist, physician, hygienist, and safety engineer. The reluctance of management and the indifference of the dental profession to the development of industrial dental health service, have contributed to its slow progress. Its relationship to industrial economy has however been recognized and, studied by the Council on Dental Health of the American Dental Association and by various component societies of the parent body. The Council has encouraged the development of industrial programs within certain prescribed limits.

Several states have now added dental consultants to their industrial hygiene divisions.

The author refers also to recent action of the Illinois State Dental Society, which has enunciated principles and standards of programs to be controlled and promoted, to the Industrial Committee of the Society. Briefly summarized they are as follows: (1) Dental examination, diagnosis and consultation. (2) Emergency dental care, treatment of acute dental conditions. (3) Elimination and treatment of dental sepsis. (4) Recognition, study and palliative treatment of oral manifestation of disease processes of occupational origin. (5) Treatment of industrial injuries involving dental structures. (6) Dental health education. Under this plan the services rendered must be part of a well-integrated health program and limited to non-restorative dental procedures; the cost must be borne by industry, without fee charge to the employee.

MARGARET H. WILTON

Industry Protects the Workers. C-I-L's Health Program. Jones, F. M.: *Health*, May-June, p. 14, 1947.

The author outlines briefly the development of industrial medicine from its beginning in the provision of first aid for injuries, to the comprehensive health program as found today in the larger and more progressive Canadian industries. He presents the health and welfare program of Canadian Industries Limited as a good example of how industry can, and frequently does, protect its workers. After an appraisal of his work possibilities by the Employment Department the prospective employee is sent to Medical Service for his preplacement medical examination. When his physical capabilities have been correlated with his work capabilities, he is given a course of training for the job considered suitable for him. He is taught to work safely, efficiently and well.

The Medical Department of Canadian Industries Limited offers an intensified program of service, with emphasis on prevention. The author refers to the first aid treatment always available, the advice given to employees regarding health problems, the periodic health examinations for workmen who are exposed to potentially dangerous substances, the annual examination for all employees in order to recognize health defects in early stages, the chest x-rays together with observation, and, the health instruction provided by the staff of the Medical Department. C.I.L.'s Medical Department co-operates closely with the health departments and health agencies of each province in which it operates. Reference is made also to the work of the accident prevention program, to the special protective equipment used where necessary, the periodic plant inspections made by the works medical officer and the safety engineer to detect unsatisfactory conditions, the importance of the cafeteria, and the protection afforded the employee and his family under the C.I.L. Co-operative Health Insurance Plan.

Further developments of the industrial dental hygiene program and of the industrial mental hygiene program are indicated for the future. MARGARET H. WILTON

The Meyers Memorial Award

The Award of $100.00 will be paid for the best thesis or dissertation on "The Study and Treatment of Functional Neuroses which if untreated, or not treated sufficiently early, might terminate in insanity". For particulars write to:

THE CANADIAN MEDICAL ASSOCIATION
135 St. Clair Ave. West, Toronto 5

OBITUARIES

Alexander Thomas Cameron, Professor of Biochemistry in Manitoba University since the close of World War I, died in the Winnipeg General Hospital on September 25, after a long illness. He was born in London, England, and was educated at Edinburgh University, where he received his M.A., B.Sc. and D.Sc. He also received the 1851 Exhibition Science Research scholarship, studying at University College, London, under Sir William Ramsay. Later he studied at the Polytechnik Institute, Karlsruhe, Germany. In 1909 he came to Winnipeg as lecturer in physiology and biochemistry assisting the late Professor Swale Vincent. During the war of 1914-18 he served overseas for four years with the R.A.M.C. On his return to Winnipeg in 1919 he became professor of biochemistry and was soon recognized as one of the foremost authorities in that subject. In 1928 he wrote a *Textbook of Biochemistry*; in 1930 in collaboration with Dr. Frank D. White he wrote *Practical Biochemistry*; in 1933 with Dr. C. R. Gilmour—*The Biochemistry of Medicine,* and in the same year *Recent Advances in Endocrinology.* The latter work has gone through six editions.

His time was not wholly spent in teaching or writing. He did much research work in marine biology and became Chairman of the Fisheries Board of Canada. For his services in this connection he was recently honoured by the King to receive the C.M.G. He was an active member of the Scientific Club of Winnipeg; fellow of the Royal Society of Canada; fellow of the Royal Institute of Chemistry, Great Britain; fellow of the Chemical Institute of Canada, and a member of the Senate of the University of Manitoba.

He is survived by his widow, a daughter of the late C. N. Bell, LL.D.; a son Alistair; a daughter, Janet, and one brother in Montreal.

♣ ♣ ♣

AN APPRECIATION

In the death of A. T. Cameron, Canadian Science in general, and the Medical School of Winnipeg in particular have suffered a grievous loss. Of his 65 years, 38 were passed in close contact with medical students and medical practitioners. In his early Canadian days, he collaborated with Swale Vincent, and this association not only determined the trend of his work, but strengthened the rigid adherence to scientific standards that marked his every activity. He was a tireless worker, and his ideals were uncompromising. All the world knows of his contributions to biochemistry, and of the Chemical Societies international in character, in which he held high office. Canadians know of his work as Chairman of the Fisheries Board, and his colleagues and friends in Winnipeg recall with pleasure many happy memories of the man as well as of the scientist.

Very close to his heart was the Scientific Club of Winnipeg of which he was one of the founders, and in which he filled the post of secretary for many years. He had little or no interest in athletic pursuits; he was ever a student. French and German he read fluently, not only for the scientific information thus made available, but for the love of the literature. He enjoyed a game of bridge, but his real hobby was stamp collecting, a pursuit which gave limitless scope for his methodical ways and zest for minutiæ.

Although born in London, he was unmistakably a Scot of the Scots, in no respect more so than in his habitual reticence.

Rather more than a year ago he took part in the Empire Scientific Conference called in London by the Royal Society. Few events in his life brought him greater happiness; his outstanding services to Canadian Science were recognized by the award of the C.M.G. an honour unlooked for, but deeply appreciated. While we deplore his passing, we are grateful that so many productive years were spent in our midst. The impress of

his personality and the influence of his teaching will endure. A.G.

Dr. James C. Connell died in Kingston, Ontario, on October 5. He was 84.

Born in Ayr, Dr. Connell took his master of arts degree at Queen's with the medal in mathematics in 1885 and his M.D. degree in 1888. He did postgraduate work in New York and later was the first eye, ear and nose specialist to set up practice here.

He was largely responsible for founding No. 5 stationary hospital which later became No. 7 general hospital during the First Great War. He did not go overseas, but the unit saw service in Egypt and France.

After the war his efforts were credited with having the Queen's medical faculty remain in Kingston instead of being moved to Ottawa. As chairman of the building committee of Kingston General Hospital from 1920 to 1925, he helped supervise the remodelling of the hospital and construction of its Douglas block and isolation wing.

He served as dean of medicine at Queen's from 1903 until 1929. In 1930 he was acting principal of the university during the period between the resignation of Dr. Bruce Taylor and the assumption of the principalship by Dr. (not Sir William) Fyfe. Thereafter he resumed practice for four or five years. Surviving is a son, Dr. Hendry Connell, of Kingston.

Dr. Joseph T. Cooper died on September 6 at Victoria, B.C., at the age of 69 after an illness of some months. He practised in Scott before coming to Saskatoon.

Dr. Cooper was one of a group of doctors that many of the older generation of Saskatonians looked upon as a guide and close friend as well as medical adviser. He was a man of outstanding attainments socially and professionally.

Dr. Cooper's hobby was the breeding of Scotch collies and he had kennels in Saskatoon for many years and at his new home near Victoria. He was recognized as an authority on the breed, so much so that in 1941 he judged collies at the American Kennel Club show at Madison Square Gardens, New York City, the largest show on the continent.

He is survived by a son, a daughter, two brothers, and a sister.

Dr. Harold Samuel Dawson, of Vancouver, died on September 6. He graduated in medicine from the University of Toronto in 1928.

Dr. William Lorne Deeton, of Cleveland, Ohio, died on July 27. He graduated in medicine from the University of Toronto in 1926.

Dr. L. E. Fortier, aged 82, died in Montreal on September 5. A former professor at the old Laval University, which later became University of Montreal, Dr. Fortier had been associated with Hôtel Dieu throughout his long medical career.

He founded a number of medical institutions in this district, including the Chinese Hospital and a hospital at Caughnawaga; he was founder too of *L'Abeille*, a medical journal; he was a knight of the papal order of St. Gregoire le Grand and professor emeritus at University of Montreal.

Dr. J. W. Fraser, aged 62, Kitchener Medical Officer of Health for 20 years, died on September 9. He was president of the North Waterloo Medical Society.

After graduating in medicine from Queen's University in 1914, he practised in Cochrane until 1923, when he came to Kitchener. Dr. Fraser remained here two years, then moved to Chesley where he practised until 1927. He returned to Kitchener in 1927 and was appointed M.O.H. He attended St. John's Anglican Church.

Surviving are his widow, three sons, two daughters, two brothers, and four sisters.

Dr. Jules F. Gendron, aged 79, a practising physician in Grand Rapids, Mich., since 1904, and once regarded as poet laureate of Canada, died on September 11. Dr. Gendron, a native of St. Francis, Que., was well known in Canadian literary circles as a poet, doing his writing in French. He was a graduate of Laval University and of the Medical School at Hamline University, St. Paul, Minn., which he left in 1896 to take up practice in Crookston, Minn., before coming to Grand Rapids eight years later.

Dr. Robert Goodall died suddenly on September 25 at the Western Division of the Montreal General Hospital in his 70th year.

Born in Ottawa he received his early education in the Christian Brothers School there and at Ottawa University, where he was a gold medallist in his graduating year. He came to McGill University to take his bachelor of arts degree and then entered the medical course from which he was graduated in 1901. He interned at the Royal Victoria Hospital for four years before going on to postgraduate work in London, Edinburgh, Paris and Berlin.

He served overseas with the 5th Royal Mounted Rifles in the First World War and was wounded three times and three times mentioned in dispatches while acting as battalion medical officer. Later he was invalided to England, served as A.D.M.S. at Shornecliffe with the rank of acting colonel and was awarded the O.B.E.

Dr. Goodall was a former professor of clinical gynæcology and obstetrics at McGill University; a member of the consulting staff in gynæcology and obstetrics at the Royal Victoria Hospital and the Homœopathic Hospital, and in gynæcology at St. Mary's Hospital in Montreal; a life fellow of the American Gynæcological Society; a fellow of the American Association of Gynæcologists, Obstetricians and Abdominal Surgeons; a Foundation Fellow of the Royal College of Obstetricians; an Honorary Fellow of the International College of Surgeons; a Fellow of the Montreal Chirurgical Society; consultant to the Saranac General Hospital and consultant to the Alice Hyde General Hospital, Malone, N.Y.

A philosopher and linguist of international reputation, he was working on a philosophical book entitled, Religio Chirurgi, at the time of his death and had recently presented in Toronto a paper on The History of Man's Concept of The Soul.

He is survived by his widow, one son, two daughters and one brother.

Dr. Walter E. Lake, of Ridgetown, Ont., died on September 5 in Harper Hospital, Detroit.

Until his retirement, he had been prominent in the civic life of Ridgetown. He had taken over his father's practise and had served the community for many years.

He was a charter member of the Ridgetown Golf and Country Club, and president for three years, a member of Howard Lodge, A.F. & A.M. No. 391, of the United Church, chairman of the district high school board, and a member of the old Ridgetown high and vocational school board for many years.

He was a graduate of McGill University, 1907, and interned at Harper Hospital after graduation.

Surviving are his widow, two sons, and one brother.

Dr. Real Lanthier died in Montreal on August 23. He was 39 years of age.

Born in Vankleek Hill, Ont., he obtained his B.A. degree from the University of Ottawa in 1928, and from then until 1935, studied medicine at the University of Montreal, where he played hockey for the senior university team.

At the time of his death he was medical director of La Palestre Nationale, Reserve Medical Officer of Les Fusilliers Mont-Royal, a member of the Ste. Thérèse Riding Club, a life member of the Canadian Club and former physician of the Montreal Jockey Club.

He is survived by his widow, his mother and three sisters.

Dr. G. W. Leech, aged 75, died in Lethbridge, Alta., on September 28.

He was born in Leeds County, Ont., in 1872, and moved with his parents to Manitoba in 1879. He was educated in the schools of Brandon and attended the University of Manitoba, graduating with a medical degree in the class of 1900. He opened a practice at Neepawa, Man., where he remained for four years before proceeding to Europe taking postgraduate work in surgery in London and Paris.

On his return from abroad he practised medicine in Brandon until 1907 when he moved to Alberta, settling at Taber, then a growing coal-mining community. In 1915 he enlisted in the First Great War and assisted in recruiting the 113th Lethbridge Highlanders. He transferred to the Canadian Army Medical Corps, serving overseas with the rank of captain until his discharge in 1918.

On demobilization Dr. Leech joined the medical firm in Lethbridge of Connor, McNally and Leech and was the last surviving member of that firm.

A member of the Masonic order, he rose high in the lodge. He was a past master of his lodge and past district deputy grand master. He was likewise a member of the Shrine. He was also an Elk. Dr. Leech was always interested in amateur sports and was president for some years of the old Crow's Nest Hockey League.

While living in Raymond, Dr. Leech was an active member of the Rotary Club and he was also a charter member of the Lethbridge Rotary Club. He was a member of Southminster church.

Particularly during his residence at Taber, Dr. Leech took a prominent part in political affairs, and was an active leader in the Conservative party. On several occasions he was mentioned as a possible candidate.

Surviving are his widow, a daughter and a son.

Dr. John A. MacDonald, director for eastern Canada of the Canadian institute for the blind and widely known for his work throughout the Dominion, died suddenly September 12, at his home in Montreal.

Born in Glassburn, N.S., in 1883, he attended local schools. At the age of 14 he went totally blind. In 1905 he was gold medallist at the Posse institute of medical gymnastics, Boston. He was registered by the Nova Scotia medical board in 1913 after graduation from the Massachusetts College of Osteopathy, where he led his class. In private practice in Halifax until 1927, he was named field secretary for the Maritimes of the Canadian institute for the blind.

Dr. MacDonald established the Maritime foundation for the blind and organized the Quebec division of the institute.

He is survived by his widow and two sons.

Dr. John Hampden McIntosh, of Riceville, Ont., died March 1. He graduated in medicine from the University of Toronto in 1909.

Dr. Charles James McPherson died on September 17 in Ottawa. He was 63.

A veteran of the Second Great War, Dr. McPherson served overseas and in Canada as a Major with the Medical Corps. Prior to coming to Ottawa, he practised in Shawville for many years.

He is survived by his widow and one son.

Dr. Thomas Jefferson Page, aged 77, died suddenly at his home in Toronto on October 3. He practised continuously for more than fifty years, retiring on account of ill health only two years ago. He was descended from a family of pioneers who settled in North York early in the last century. At the age of 21 he graduated from the University of Toronto and began to practise on what is now St. Clair Avenue, then a rural district and a long way north of the city limits. A few years later he moved into Toronto and became a member of the staff of the Western Hospital. In 1913 he was appointed demonstrator in medicine on the Medical Faculty, retiring to the consulting staff of the hospital in 1936.

Few persons were so gifted with the faculty of making friends, with whom he shared himself to a remarkable degree. Profoundly happy in his chosen profession, he never aspired to administrative power or prominence, so long as he could remain close, hands and heart, to the problem of the sick, a devotion which placed spiritual above material reward. His colleagues mourn the loss of a generous friend.

He is survived by his widow, née Henrietta Urquhart; his son, Dr. Stewart Page; and two daughters, Mrs. Allan Rutter and Mrs. Joseph Hilley.

Dr. H. William Riley, aged 31, died suddenly on August 26, at his home in Winnipeg.

He took his medical course at the Medical College, Winnipeg, graduating in 1939. He then spent a year at the General Hospital.

Dr. Riley enlisted with the R.C.A.F. in 1940 and rose to the rank of Squadron Leader. He went overseas in 1942 and served six months as medical officer on the Shetland Islands. His squadron was transferred to Ceylon, India, where he served a year before transferring to the R.A.F., in which he continued service another year in India.

He returned to Canada in 1944. He spent a year in Calgary, serving in the R.C.A.F., in hospital, and then came to Deer Lodge Hospital where he served until late in 1945. He was discharged from the air force the end of 1945 and since that time had been connected with the Winnipeg Clinic and also with Deer Lodge Hospital.

He was a member of St. Aidan's Anglican Church and of Zeta Psi fraternity.

Besides his parents, and his widow, he is survived by a son, a daughter and a sister.

Dr Ruben-Charles Laurier est décédé le 26 septembre à l'âge de 78 ans, après une longue maladie.

Né à Lachenaie, en 1868, il avait fait ses études au collège de l'Assomption et à l'université Laval, et avait été admis à l'exercice de la médecine en 1892. Il avait exercé sa profession pendant 55 ans.

Il laisse son épouse, deux fils et quatre filles.

Dr. J. E. St. Onge died in Montreal on September 1 after a lengthy illness. He was 77 years of age.

Born at St. Stanislas de Kosko, Dr. St. Onge completed his classical studies at the College Ste. Marie and graduated as a doctor at Laval University in 1893. He practised medicine at Valleyfield until 1901 when he went to Paris to specialize in the study of oto-rhino-laryngology.

He was attached to Ste. Justine Hospital and was head of the oto-rhino-laryngology department. He was at one time president of the medical council of the hospital and was a life governor of the institution. He held memberships in the Société Médicale de Montréal and in the Medico-Chirurgical Society, oto-rhino-laryngology section.

He is survived by his widow, three sons and four daughters.

Dr. Austin Hagar Speers died in Burlington, Ont., September 30, after a brief illness.

One of the best known physicians in this section of Ontario, Dr. Speers held many high posts in connection with health problems, and was one of the pioneers in the fight for immunization against typhoid, diphtheria and

cholera infantum. He was responsible for having a modern water system installed in 1910 and in 1912 he was given the permanent appointment of M.O.H.

Dr. Speers was a lifelong advocate of preventive health measures and he succeeded in many of the campaigns he waged over the years. He fought for milk pasteurization and other safeguards.

A native of Halton County, Dr. Speers was born on a farm near the present Bronte crossroad on the Queen Elizabeth Highway. After receiving his early education in Oakville, he attended Trinity Medical College, from which institution he graduated in 1890. He moved to Burlington immediately and began general practice.

Last year Dr. Speers gave up three of his jobs, those of M.O.H. and health officer for the public and high schools, but said he was not going into complete retirement. He retained his active connection with church affairs, particularly his work as Sunday school superintendent.

Dr. Thomas Richard Welwood died on September 11 at the Toronto Western Hospital. He was 70 years old.

Born in Mona Mills, he attended Orangeville High School and graduated in Arts at Queen's University and in Medicine at the University of Toronto in 1908. He practised in Neudorf, Sask., for a few years prior to the First Great War when he served overseas with the Canadian Army Medical Corps from 1916 to 1919.

Dr. Welwood did postgraduate work in England and Edinburgh and upon his return to Canada established a practice in Toronto.

Active in local politics, he was a past president of Ward Seven, Liberal Association.

Surviving are his widow, a sister and five brothers.

Dr. Robert Edward Whitteker, of Yorkton, passed away suddenly at his home on September 6. Dr. Whitteker graduated from Manitoba in 1929 and has always practised at Yorkton where he specialized in eye, ear, nose and throat work. He was forty-eight years of age. Dr. Whitteker is survived by his widow and one daughter.

NEWS ITEMS

Alberta

The 42nd Annual Convention of the Alberta Division was held in the Medical Building, University of Alberta, Edmonton, on September 10, 11, and 12, 1947. Two hundred and forty-four medical men attended. This attendance was very encouraging and men gathered from all parts of the Province to follow the program which was rather an innovation this year in that the scheme was to cover a decade of medical progress in all its branches under the headings of "What's New" or "Recent Advances". In all forty-one papers were well presented the majority illustrated, a period of ten to twenty minutes was allowed and adhered to! Discussions on the topics were open following each daily session or recess. The papers are being published in a special issue of the *Alberta Medical Bulletin* for presentation to the medical men of the Province.

The social events of the meeting included teas, golfing, Alumni and the Association banquets. At the latter banquet an excellent and patriotic paper was presented by Mr. George H. Steer, K.C. The members of the profession are indebted to the great deal of work carried out by the various committee members for the arrangements and highly successful program and entertainment presented at this year's meeting. We are especially indebted to Dr. Don Easton and his committee on arrangements.

Following one of its best years under the Presidency of Dr. Harold Orr, the reins of office were handed over to Dr. A. E. Wilson, of Calgary, with whom all members of the Association will co-operate to continue to advance the medical interests in Alberta. Dr. Gordon N. Ellis was named President-elect.

A report by the Economics Committee outlining a plan for the introduction of Voluntary Prepaid Medical Care on a Provincial-wide basis was presented to the meeting. This plan was accepted and the Council of the College of Physicians and Surgeons was instructed to proceed with the necessary steps to incorporate a society to carry out the plan.

Dr. G. E. Learmonth, after 24 years as Chairman of the Editorial Board, Alberta Division, has resigned that post in order to give more time to other phases of medical advancement. The medical men of this Province will miss Dr. Learmonth's book, magazine and news reviews which he so faithfully had published over the long period of his Chairmanship. We wish to thank Dr. Learmonth and his members for the sound foundation they built for further advancement in the dissemination of medical knowledge through the medium of the medical press. His advice will be sought after with the hope also that Dr. Learmonth might publish a paper on his experiences and recommendations arising from his period of office.

A kindly smile, warm friendliness, a keen and genuine interest in every phase of medical advancement in Alberta was that of Dr. Learmonth. We wish him many years of further usefulness and happiness in his activities.

Dr. H. H. Hepburn has returned from attending the American College of Surgeons' meeting in New York.

We are pleased to learn that Dr. F. M. Smith, of Camrose, has obtained his F.R.C.S.(E.) during a recent sojourn in the "land of the thistle".

Dr. Gordon Bell is doing postgraduate work in cardiology at the London Hospital, London, England, for two years.

W. C. WHITESIDE

British Columbia

The poliomyelitis epidemic in B.C. is dying down, and only the occasional case is now recorded. To date, Vancouver has had approximately 160 cases of the disease originating within its area.

The building of an Academy of Medicine for B.C., to be situated in Vancouver on a site already chosen, has been halted, it is hoped temporarily only, on account of high construction costs and other difficulties.

The new scale of fees drafted for British Columbia is coming into use. It certainly does not reflect a great rise in medical costs, at least as far as medical fees are concerned. Further adjustments, especially as regards Workmen's Compensation fees, will probably be forthcoming at an early date.

The B.C. Medical Association's committee on Industrial Medicine, has recommended the formation of a Provincial Division of Industrial Hygiene, to ensure that industry as a whole in B.C. will be covered by suitable medical service.

Dr. Lavell H. Leeson, of Vancouver, has been elected President of the B.C. Medical Association for 1948. Other officers are: Dr. Frank W. Bryant, Victoria—President Elect; Dr. W. Laishley, Nelson—Vice-president; Dr. J. C. Thomas, Vancouver—Sec. Treas. Directors at large: Dr. S. G. Kenning, Victoria; Dr. Geo. Wilson, New Westminster; Dr. C. Graham, North Vancouver; Dr. O. O. Lyons, Powell River; Dr. S. A. Wallace, Kamloops.

The new buildings of the B.C. Cancer Institute are now well under way. This will greatly facilitate the continually increasing work of the Institute.

J. H. MACDERMOT

Manitoba

At a meeting of the Sanatorium Board of Manitoba, Dr. E. L. Ross, Medical Director, reported that for the first six months of 1947 the deaths from tuberculosis showed a significant decrease from the corresponding period of 1946 — 145 compared with 199. Though Indians comprise only 2% of the total population of the Province, deaths of Indians were 40% of the total deaths. With sanatorium beds for tuberculous Indians now being available at Dynevor, Clearwater Lake and Brandon, improved medical and welfare services for Indians generally, development of nursing stations and surveys for finding cases, marked improvement for the rising generation of Indians can be expected. During the first five months of 1948 it is hoped that 100,000 people in Winnipeg and district can be examined for tuberculosis.

With the opening of the medical school on September 12 many changes in the faculty have been announced. Dr. C. W. Burns has been appointed Professor of Surgery, Harold V. Rice, M.D., Ph.D., has been appointed head of the Department of Physiology, Dr. Bruce Chown is head of the Department of Pædiatrics, Dr. J. M. Lederman, Associate Professor of Pathology, and F. D. White, Ph.D., Associate Professor of Biochemistry. Dr. Ian W. Monie has come from the Department of Anatomy, University of Glasgow to be Assistant Professor of Anatomy, and Ivan W. Coleman, B.A.(Tor.) has been appointed Lecturer in Biochemistry. ROSS MITCHELL

New Brunswick

Dr. M. Hoehn of Vancouver, B.C. has established practice in Riverside, Albert Co., N.B. Under his supervision the McClelan Memorial Hospital at Riverside has been re-opened. This hospital has been closed since the retirement of Dr. J. E. M. Carnwath in 1944.

It was announced at a recent meeting of the town council of Campbellton, that the construction of a new provincial medical hospital will be begun shortly at Campbellton.

Dr. D. C. Malcolm, of Saint John, was recently installed as Grand Master of the Grand Lodge of New Brunswick Free and Accepted Masons. Dr. Malcolm is presently on vacation in Cuba.

The first of the district cancer diagnostic centres was opened in August at Edumunston in the Hotel Dieu Hospital. Dr. P. C. Laporte is the director of this drive. Other centres are being organized rapidly in other hospital centres.

Dr. Chester M. Oakes has begun practice in St. Martins, N.B.

Stella Maris Hospital was opened late in September at Buctouche. This Hospital will serve the southern section of Kent County. Dr. Robert Marcoux is to be congratulated that his efforts over the last ten years have been realized with the establishment of this hospital.

At the annual meeting of the York Sunbury Medical Society held at Fredericton the officers for the year 1947-48 were elected as follows: *President*—Dr. O. E. Morehouse; *Vice-president*—Dr. J. S. Hynes, *Secretary-Treasurer*—Dr. G. M. MacElman, *Representative to Executive of N.B. Medical*—Dr. Robt. Baird. This meeting was addressed by the members of the Advisory Committee of the N.B. Public Health Cancer Program.

A. S. KIRKLAND

Nova Scotia

A unique event in medical circles in Nova Scotia took place at Halifax when Dr. John Cameron of Bournemouth, England, Professor of Anatomy at Dalhousie Medical School from 1915 to 1930 was tendered a banquet by former pupils. At no little trouble he had succeeded in getting the necessary arrangements completed to come over again "to see my boys". One hundred and twenty of them met to greet him at dinner and he knew them all. Not only that, but he knew something about each of them and their careers. His portrait was presented to the Medical School, to be hung in the John Cameron X-ray Rooms of the Anatomy Department. He was also presented with a beautifully illuminated souvenir of the occasion bound in tooled morocco leather, and signed by each of those present. For two weeks he was perhaps the most popular man in Nova Scotia. He was taken to Cape Breton to sample their special hospitality, and had a delightful trip through the Annapolis Valley. He was publicly and privately entertained on numerous occasions. At the home of Dr. and Mrs. A. E. Kerr, President of Dalhousie University, a party was held on his birthday, his seventy-fourth by the way. For the physicians in Nova Scotia and New Brunswick who participated in his welcome it was a heartwarming experience.

Dr. F. A. Zapffe, representing the Association of American Medical Colleges, and Dr. Donald G. Anderson of the Rockefeller Foundation conducted a thorough and painstaking survey of the Dalhousie Medical School in September. Both were enthusiastic over the numerous improvements and substantial progress made since their last visit.

By a recent adjustment of the Cabinet of the Province of Nova Scotia, Dr. F. R. Davis, Minister of Health and Welfare, assumed the additional portfolio of the Department of Municipal Affairs. H. L. SCAMMELL

Ontario

Fellowship in the American College of Surgeons of 20 Canadians was recently announced. Professor Robert Janes, of Toronto, and Professor Bingham, of Kingston, were received *ad eundem gradum* and Drs. C. C. Spooner, of Toronto, Donald McFarlane, of London, John W. McNichol, of Hamilton, and Joseph Hermann, of Ottawa, successfully passed the exacting tests demanded by the College. They are all to be congratulated.

The University of Western Ontario conducted a three day Conference School on Methods of Instruction for University teachers in September. Professor E. L. Danniher of the Ontario College of Education supervised the course. Teaching is an art. Comparatively few demonstrators and clinicians have been trained in the principles of instruction. There should be an enthusiastic response were the opportunities offered by such conferences to be extended to other colleges.

The plan for prepaid medical services authorized by the Ontario Medical Association has been properly incorporated and is now organized for active service. A notably strong committee with Dr. Melville Watson as chairman is in charge.

Dr. Gordon Murray gave a surgical clinic and Dr. J. P. Pratt, Henry Ford Hospital, Detroit, gave a clinic on obstetrics and lectured on Emotional Problems in Obstetrics at Stratford on October 7 and 8. It was the District meeting of the O.M.A. and was under the chairmanship of Dr. M. C. Harvey, of Kitchener.

The Annual District Meetings of the Ontario Medical Association was opened by District No. 10 in Fort William and Port Arthur on September 4, 5 and 6.

As in former years this meeting was held in conjunction with the Lakehead Summer School. The visiting lecturers were Professor W. F. Connell, of Kingston, and Drs. C. W. Harris, E. H. Botterell and M. C. Dinberg, of Toronto. Clinical demonstrations in McKellar Hospital, Fort William and St. Joseph's Hospital, Port Arthur, occupied three mornings and a program of lectures was given at evening sessions on September 4 and 5. Dr. J. E. Carson, President-Elect of the O.M.A. and Dr. R. P. Smith, Vice-President of the Ontario College of Physicians and Surgeons were also heard.

District No. 9 met in Gravenhurst, September 15 and 16 under Dr. C. L. Crang, of Sudbury, Counsellor of the District. A scientific session occupied the first day with Drs. R. J. Galloway, J. R. Card and J. F. McCreary, of Toronto, and C. B. Ross of the Muskoka Hospital for Consumptives as guest speakers. A business session occupied the morning of the second day and Dr. Markowitz, of Toronto, was guest speaker at the luncheon. His subject was "Experiences in the East as a Prisoner of the Japs".

On September 17 District No. 5 met in Barrie with Dr. W. W. Bartlett, of Brampton, District Counsellor in the chair. The business session occupied the morning. In the afternoon Dr. Angus McLachlin, of London, spoke on Surgery in Children and Dr. Douglas Taylor, of Toronto, gave a paper on Diagnosis and Treatment of Arthritis. A dinner in the evening followed the busy day. The President-Elect and Mr. Gladstone gave addresses.

Dr. W. V. Johnston, of Lucknow, is Counsellor for District No. 3 consequently the program of the Meeting in Owen Sound on September 24 was not of stereotyped pattern. Dr. Herbert Coleman and Dr. R. B. Kerr, of Toronto, instead of giving lectures were presented with questions on Fractures and the Treatment of Medical Ailments submitted by the members. Both acquitted themselves well. At dinner in the evening Dr. Carson spoke and Mr. Angus Mowat, Director of Public Library Service, gave an interesting address.

District No. 2 held its meeting in London, September 30 and October 1. Business was attended to on the evening of the first day and a scientific program was contributed by members of the staff of the University of Western Ontario in the forenoon of the second. The afternoon session heard Dr. Rhodes, of Toronto, speak on Poliomyelitis and Dr. A. M. Doyle on Psychosomatic Disorders. Dr. G. E. Hall, President of the University, was guest speaker at the dinner.

The ancient town of Cobourg entertained District No. 6 on October 14 and 15. The Counsellor, Dr. Dobson, of Peterborough, conducted the evening session on the 14th when a lengthy agenda of business matters was discussed. Dr. Anderson, of Bellevile, presided on the morning of the 15th when Dr. W. P. Tew, of London, spoke on Problems in Gynæcology. The afternoon session was held in the Ontario Hospital with Dr. W. H. Birks, of Bowmanville, in the chair. Dr. F. S. Brien and Dr. A. D. McLachlin, of London, gave papers and replied to animated discussions of the subjects presented.

The President-Elect, Dr. J. E. Carson, of Brantford, attended all of the district meetings so far reported and also presided at the meeting of the Brant County Medical Society which met in Brantford on September 25.

M. H. V. CAMERON

Prince Edward Island

The P.E.I. Division of the Canadian Medical Association has had another successful series of monthly dinner meetings during the summer months. Guest speakers at these dinners were Dr. C. B. Stewart of Dalhousie, who spoke on B.C.G. Vaccine in T.Bc., Dr. C. W. Harlowe of Camphill, on Endocrinology, Dr. J. A. MacFarlane of the University of Toronto on Rectal Surgery, Dr. Harold Segall of Montreal on Cardiac Pain, and Dr. A. R. Grant of Summerside on Cæsarean Section. These dinner meetings were inaugurated by the late Dr. J. C. Houston, and have come to be an accepted part of the medical life in the province, and are always extremely well attended.

There has been considerable moving about among the provinces' doctors in recent months. Dr. Muncey Tanton left O'Leary to go to the Montreal General Hospital for an otolaryngology service. Dr. George Dewar of Bedeque took over the practice in O'Leary, and Dr. Archie McVicar, formerly of Markdale, Ontario, is now in Bedeque. Dr. G. B. Shaw moved from Mt. Stewart to Shelbourne. Dr. L. E. Prowse completed his course of anæsthesiology in Montreal and now is anæsthetist at the P.E.I. Hospital. Dr. Kent Irwin has completed his residency in obstetrics at the Royal Vic in Montreal and is now on the staff of the Polyclinic, Charlottetown. Dr. Temple Hooper is opening an office in Charlottetown. Dr. Len Farmer has moved from Mt. Stewart to Charlottetown and Dr. A. A. Kennedy from Georgetown to Charlottetown. Dr. M. Shapira has opened an office in New Glasgow and Dr. Leigh Ramsay has opened one in Tyne Valley.

As yet the Province has escaped the outbreak of polio that is prevalent elsewhere in the Dominion. This is a welcome respite following last year's severe epidemic. There are still about twenty-five cases in the polio clinic, the residue of last year's attack.

R. G. LEA

Quebec

L'Hon. Albini Paquette, ministre de la Santé dans le gouvernement du Québec est parti pour l'Europe en septembre pour représenter la province au Congrès international des médecins de langue française qui se tient à Paris à partir du 15 septembre.

Le contrat général pour la construction d'un hôpital à Blanc Sablon vient d'être accordé. L'édifice aura 3 étages. L'hôpital desservira la région de la côte Nord située à plus de 800 milles de la ville de Québec.

Le Sanatorium Prévost de Montréal construit un nouveau pavillion et réaménage des pavillons anciens. Entièrement réorganisé, il possède maintenant un bureau médical qui groupe non seulement de nouveaux neuro-psychiâtres, mais encore des représentants de plusieurs spécialités. Lorsque les immeubles seront terminés, le Sanatorium pourra accommoder une centaine de malades.

Le Dr J. L. Pilon de l'hôpital du Sacré-Cœur de Cartierville a été élu "fellow" de l'*American College of Chest Physicians*.

JEAN SAUCIER

Saskatchewan

The Fortieth Annual Meeting of the College of Physicians and Surgeons of Saskatchewan was held in Regina, September 8, 9, 10. The meeting was well attended and great interest was shown in all sections. Registration was 210. The business of the profession was organized for presentation by a committee meeting the day before, and the latest details incorporated into the reports. When these were presented to the well attended session on the first morning, the decisions of the Central Health Services Committee and Medical Advisory Committee of Seven (the negotiating group) were approved.

The scientific sessions were pronounced excellent and great appreciation was given to the fine papers delivered. Our thanks go to Drs. F. G. McGuinness, K. R. Trueman, F. A. L. Mathewson, all of Winnipeg, and Dr. J. M. Campbell, of Saskatoon, for this outstanding success.

The dinner addresses of Dr. McGuinness, President of the C.M.A. and Dr. A. McCannell, Minot, North Dakota, were timely and informative. At luncheon on September 8, Dr. A. D. Kelly gave an analysis of the Refugee Doctor situation and on September 9, Mr. Justice W. G. Ross gave a fine and learned address

on some problems common to law and medicine with suggested improvements. In justice to Judge Ross we will not agree with Dick the Butcher, in Henry VI, who said, "First, let's kill all the lawyers".

Dr. C. J. Kirk, director of hospital planning and administration in the health services planning commission, has been given nine months' leave of absence to take a special course in hospital administration at Columbia University. During his absence Dr. G. E. Wride, also of the health services planning commission, will look after Dr. Kirk's work.

Dr. D. E. O. Magner, pathologist of the Regina General and Grey Nuns' Hospitals has accepted a teaching position with the Ottawa University at Ottawa, his duties to commence this fall.

B. BRACHMAN
E. W. SPENCER

General

The following have been accepted into Fellowship of the American College of Surgeons:

Alberta: John W. Bridge, Edmonton; Meyer S. Miller, Calgary; Louis P. Mousseau, Edmonton.

British Columbia: Frederick W. Grauer, Vancouver; James A. Rankine, Kelowna.

Ontario: Dermid L. C. Bingham, Kingston; Robert M. Janes, Toronto; Donald C. McFarlane, London; John W. McNichol, Hamilton; Joseph D. Hermann, Ottawa; Christopher M. Spooner, Toronto.

Prince Edward Island: Arthur R. Grant, Summerside.

Quebec: Gaston N. Duclos, Montreal; William R. Foote, Montreal; Kenneth T. MacFarlane, Montreal; George B. Maughan, Montreal; Antoine Pettigrew, Quebec; James G. Shannon, Montreal; George A. Simpson, Westmount.

Saskatchewan: John B. Ritchie, Regina.

Prize Winners at American Physicians Art Association, Atlantic City, June, 1947.

Special Competition.—"Courage and Devotion Beyond the Call of Duty", Dr. John R. Ross, Toronto—$1,000 United States Savings Bond (Oil). Dr. J. S. Gladwin, Vancouver—$1,000 United States Savings Bond (Water colour).

Regular Exhibition, (Senior Division), Oils.—Dr. Richard Saunders, Halifax—Certificate and A.P.A.A. Medal, Award of Merit. Dr. Harvey Agnew, Toronto—Certificate and A.P.A.A. Medal, Award of Merit. (Novice Division)—Dr. Ernest S. Pentland, Sault Ste. Marie, Etchings—Certificate and A.P.A.A. Cup, Second Prize. Dr. Alexander E. MacDonald, Toronto, Carving (Plastic Chessmen)—Certificate and A.P.A.A. Cup, Second Prize. Dr. Franklin E. Scribner, Gimli, B.C., Needlework—Certificate and A.P.A.A. Cup, Second Prize.

A national advisory committee on mental health is to be established with the aim of ensuring the highest standards of mental health services throughout Canada. The committee will stress exchange of information and co-ordination of efforts between the provinces and the federal mental health division. It will advise the minister on mental health services in the Dominion and will make a study of these services not only in Canada but in other countries as well. The chairman will be appointed by the deputy minister of national health, and the number to serve on the committee has been set at 15.

The American College of Physicians will conduct its 29th Annual Session at San Francisco, April 19 to 23, 1948. General headquarters will be at the Civic Auditorium. Dr. William J. Kerr and Dr. Ernest H. Falconer, both of San Francisco, are the co-chairmen for local arrangements and the program of clinics and panel discussions.

The American Association for the Study of Goitre will meet in the King Edward Hotel, Toronto, Canada, May 6, 7, 8, 1948. The program for the three day meeting will consist of papers dealing with goitre and other diseases of the thyroid gland, dry clinics and demonstrations.

In recognition of his studies on the evaluation of BCG vaccine in the control of tuberculosis the College of Physicians awarded on July 14, 1947, the Alvarenga Prize for this year to Dr. Joseph Aronson, of the United States Bureau of Indian Affairs. The Alvarenga Prize was established by the will of Pedro Francisco daCosta Alvarenga of Lisbon, Portugal, an Associate Fellow of the College of Physicians, "to be awarded annually by the College of Physicians on each anniversary of the death of the testator, July 14, 1883".

U.S. Public Health Service Research Fellowships.—The Surgeon General of the U.S. Public Health Service has been given the authority to establish and maintain research fellowships. These fellowships are intended to promote the training and development of investigators in the field of medicine and related sciences.

Forms of application for a research fellowship may be obtained from the Division of Research Grants and Fellowships, National Institute of Health, Bethesda 14, Maryland.

Scholar in Medical Science Program Announced by Markle Foundation.—An opportunity to start a career in academic medicine is offered to young scientists with the necessary training to hold a regular faculty appointment and to conduct original research through a new program of "post-fellowship" grants, announced by the John and Mary R. Markle Foundation. The program will be conducted in co-operation with accredited medical schools in the United States and Canada. Grants of $25,000, payable to the co-operating school at the rate of $5,000 annually for a five-year period toward the support of each successful candidate or his research or both, will be available beginning with the academic year 1948-49.

Candidates will be recommended by medical schools and will be limited to young men and women with particularly strong interest in research and teaching in any of the clinical or preclinical sciences or in the sciences basic to medicine. They will have had training in some special field or combination of fields to qualify them to receive a regular faculty appointment and to conduct original research. The final choice will be made, on the basis of the schools' recommendations, by regional committees appointed by the Foundation. The young scientists chosen will be known as "Scholars in Medical Science". No fixed number of Scholars will be appointed in any year, but it is expected that approximately fifty will receive appointments during the five-year period. For each Scholar, the school will determine salary and academic rank, encourage research by setting reasonable limits upon teaching and other non-research activities, provide laboratory facilities, and, if necessary, make a financial contribution toward the support of his work.

A pamphlet covering the details of the plan has been sent to all deans of accredited medical schools, and persons interested in being considered as candidates are referred to them for further information.

Urology Award.—The American Urological Association offers an annual award of $1,000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to residents in urology in recognized hospitals.

For full particulars write the Secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, Tennessee. Essays must be in his hands before March 1, 1948.

BOOK REVIEWS

Between Us and the Dark. L. McCall. 303 pp. $4.00. J. B. Lippincott Co., Philadelphia and New York, 1947.

This is an unusually absorbing book. It is the intimate and pathetic struggle of a sensitive woman through a long mental illness back to a full enjoyment of this wonderful world. First the rain appears, then the dank, grey fog settles and at long last the sun comes out to stay.

As a general practitioner one is glad to recommend this well-written narrative to the profession. It might better have been reviewed by a psychiatrist but it actually holds more fascination for that larger body of men engaged in family practice. The author has helped us gain further insight into mental suffering and one puts down the book with a determination to help these patients with greater consideration. One realizes again the importance of utilizing to the full the services of our skilled and responsible consultants in this field. Four years of institutional care is a heavy expense on any family. One wonders how it would be possible for a person of moderate means to afford the comprehensive treatment and personal care provided in Dr. Huntingdon's Hospital. The importance which the author places on her response to insulin shock therapy may trouble some who know its limitations but apparently she was a carefully selected case. Mrs. McCall does well to recur frequently to the need for courage and insistent hope.

Medical and nursing personnel can read this book with profit but one would hesitate to recommend it to an over-imaginative and anxious patient. It might set up a train of morbid thinking—the happy conclusion might be left unread.

Pye's Surgical Handicraft. Edited by H. Bailey, Surgeon, Royal Northern Hospital, London. 668 pp., illust., 15th ed. $5.50. John Wright & Sons Ltd., Bristol; Macmillan Co. of Canada, Toronto, 1947.

This "hardy perennial" among surgical textbooks is designed to help the perplexed intern to begin his surgical career. It is a complete, concise guide, written with clarity, adequately illustrated and well indexed. The chapters on fractures contributed by Sir Reginald Watson-Jones cover the field with smoothness and economy of words. The admirable instructions on the treatment of accidental wounds, contained in a single page of the text, express in a few sentences the gist of the logic and philosophy of wound treatment gained from the last two wars.

Readers in this country will readily detect, and be able to make allowances for, those few instances in which the surgical fashions differ on the two sides of the Atlantic. As an example, Canadian readers will note that no mention is made of the occlusive pressure dressing method of treating burns, although the tanning method gets more prominence than is customary in this country. The incision for suppurating tenosinuvitis of the fingers would be placed along the sides of the digits in this continent, rather than on the palmar surface.

When allowances are made for a few such examples of difference in custom, the book can be confidently expected to satisfy the needs of yet another generation of surgeons in apprenticeship.

Penicillin Therapy. J. A. Kolmer, Professor of Medicine in the School of Medicine and the School of Dentistry, Temple University. 339 pp., illust., 2nd ed. $6.00. D. Appleton-Century Co., New York and London, 1947.

Although this book has been written primarily for clinicians the claims of the laboratory have not been overlooked especially as regards the laboratory procedures on which clinical decisions must depend. These procedures have been described with sufficient detail to enable the average laboratory technician to carry them out accurately and readily. For those whose main interest is in research the extensive bibliography should provide the way to find any desired details which may have been omitted from the text.

General practitioners will naturally seek a basis for judging the book in the sections on therapy—more particularly, perhaps, on therapy in bacterial endocarditis and in syphilis. The value of penicillin in bacterial endocarditis was the subject of an unfortunate controversy in the days when adequate amounts were not generally available and some of the hasty opinions then formed still linger among physicians. The instructions and decisions given in this book have the ring of authority and should help greatly in the removal of any remaining doubts. Despite its acknowledged usefulness in syphilo-therapy penicillin has yet to establish its final standing in competition with other remedies and its fairminded advocates will admit that Professor Kolmer has given its claim adequate and impartial attention.

The comparatively scant space given to streptomycin, tyrothricin and the other anti-biotics is probably attributable to the somewhat specialized manner in which these have been investigated and not to a failure of the author to admit their importance. He has wisely confined himself to the consideration of facts which have been determined indisputably.

In a book written under the obvious compulsion of being thoroughly up-to-date, minor defects are almost inescapable. The considered verdict, however, must be that Professor Kolmer undertook a task for which he was peculiarly well fitted and has done it well.

Therapeutic Exercise. F. H. Ewerhardt and G. F. Riddle. 152 pp. $2.50. Lea & Febiger, Philadelphia; Macmillan Co. of Canada, 1947.

When a doctor prescribes exercise for his patient just what does he intend or what does he hope to accomplish? Many variables modify the answer. The orthopædic surgeon, the cardiologist or the internist are all concerned with muscle tonus and capacity of function. The problems they seek to solve vary from weak feet to myocardial impairments or spastic palsies. Therapeutic exercise has many indications both prophylactic and curative. Goldthwait in his book on Body Mechanics shows the urgency in correction of postural defects. Neurologists are doing wonders in rehabilitation for victims of poliomyelitis. Long ago the Schott brothers showed the value of gradual exercise in heart impairments. The authors of this book have stated basic principles of physiology and anatomy upon which planned exercise may be prescribed intelligently for these and other conditions. There is nothing of the enthusiasm of Goldthwait or Schott in this book. The authors are not trying to convert readers to an idea. They show objects to be gained and detail exercises designed to accomplish results. Condensation of the material may be a little overdone but slow reading helps in understanding it.

Approach to Social Medicine. J. D. Kershaw, Medical Officer of Health, Accrington. 329 pp. $3.50. Baillière, Tindall & Cox, London; Macmillan Co. of Canada, Toronto, 1946.

This work has been well prepared and well arranged. It has a relevant preface, a useful introduction and a summarization at the end of every one of the six sections into which it is divided. Instead of an orthodox bibliography, which would be unsuitable for a book of this kind, a list of works for further reading is given. The purpose of the author is to aid or to interest non-medical readers and with that in view he has tried to avoid all words or phrases which are understood only by those with a medical or broadly scientific training.

Social medicine is only remotely related to state medicine, and is defined as "a two-fold activity which includes the development of medicine in relation to

social life and the influencing of social activities in the interests of human well-being''. From this definition it is apparent that the limits of social medicine cannot, at present, be less than elastic. The author has taken advantage of this elasticity to roam widely through political economy, law, the theory and art of government, finance, anthropology, public health and a multitude of other subjects. He has, in general, a fairly good grasp of these diverse matters and if, at times, his knowledge is more notable for its breadth than its correctness a certain latitude must be allowed those who try to do a task which requires something approaching omniscience.

It cannot be truthfully said that the possession of this book, or even a mastery of its contents, will make the practice of medicine easier or more remunerative. Its value lies mainly in offering to the thoughtful some light on the multitudinous forces which are changing the position of medicine in the framework of the local community and of the nation. It may also have a soothing or steadying effect on those who are disturbed or distracted by their efforts to keep measurably in touch with the fluctuating struggles and the vacillating thoughts of a post-war world. It is usually helpful to be told with assurance why some things are, after all, inevitable.

War Stress and Neurotic Illness. A Kardiner, Assistant Clinical Professor of Psychiatry, Columbia University; and H. Spiegel, Instructor, School of Military Neuropsychiatry, Mason General Hospital. 428 pp., 2nd ed. $4.50. Paul B. Hoeber, New York, 1947.

The senior author is well known for his work with veterans of World War I. Dr. Spiegel attained a fine reputation in the more recent conflict and is well qualified to discuss this subject. In the opening chapters one gets the impression that we have before us another book on psychological problems of the soldier at war. Actually this is just a suitable preamble to the chapters which follow. Every phase of the neurotic disorders resulting from trauma in thoughtfully considered. The authors wisely draw a distinction between battle fatigue (where physiological endurance has been overstepped) and the true traumatic neuroses. The belief is expressed that these neuroses are different in kind and in quality from those seen in daily life. The introductory chapter should be read carefully. The authors make good use of information gained from chronic cases and take up the various disturbances of function resulting from the neurosis. Special attention is given to epileptic phenomena. Psychodynamics, course treatment and other important problems are discussed. The forensic issues are clearly formulated and some definite answers given. The book is written by physicians who are familiar with Freudian concepts. Psychiatrists will find it a book worth reading and those physicians and psychiatrists who work daily with traumatic neurosis will need to study the text carefully. A knowledge of psychoanalytic concepts is a prerequisite for the reader.

Psychopathology. J. E. Nicole, Medical Superintendent, Winwick Mental Hospital. 268 pp., 4th ed. $3.50. Baillière, Tindall & Cox, London; Macmillan Co. of Canada, Toronto, 1946.

This book is recommended for serious students of the subject who have library facilities available and the author's criticisms are to the point. He clearly illustrates that many workers use the same term for different subjects and others use different terms for the same subject. Perhaps he has attempted too much in hoping to make ''some sort of orderly disposition out of the chaos of modern theory''. With an extensive knowledge of the subject he has considered fairly and carefully, although very briefly, most authors of psychopathology. The text would be more easily read if the references were reduced to subjects discussed and of more value to the clinician if it contained illustrative cases and less emphasis upon controversial individual views, as compared to generally agreed upon principles of psychopathology which receive little attention.

The author criticizes the procedure which leads to the diagnosis of a certain mental disorder which is then treated, emphasizing the importance of the individual personality makeup, yet devotes considerable space to the type psychology of Jung. Most clinicians would agree that it is quite as difficult to fit all cases into the type psychologies as it is to treat so called clinical disease entities.

Techniques and Procedures of Anæsthesia. J. Adriani, Director, Department of Anæsthesia, Charity Hospital of Louisiana. 404 pp., illust. $7.50. Charles C. Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1947.

Anæsthetists will welcome this latest contribution by Adriani which together with his previous works ''The Pharmacology of Anæsthetics Drugs'' and the ''Chemistry of Anæsthesia'' constitute a trilogy of anæsthesia which every practising anæsthetist should possess and consult frequently. This is an outline of procedures and as such is often schematic and diagrammatic in the presentation of the material. While this is invaluable for purposes of instruction, it does not lend itself to ready readability. Sustained reading under these conditions tend to fatigue one, but taken in homœopathic doses and in particular when a specific problem is to be elucidated, the book is invaluable. The author is dependable and conservative in describing the various acceptable techniques. On two points this reviewer is in thorough agreement; on page 175 ''Pentothal is a barbiturate and barbiturates do not possess any analgesic properties'' (*i.e.*, require supplementation with other anæsthetic agents) and ''two individuals are necessary to maintain anæsthesia safely — an anæsthetist and an assistant''. On the other hand, on page 227 the author recommends heating nupercaine 1:1,500 solution to 50° Centigrade. Most authorities agree that 40° Centigrade is the proper temperature.

The book covers all aspects of anæsthesiology including oxygen therapy and ends with a table in the appendix showing the selection of anæsthesia according to operation in average cases. As this must necessarily be a matter of personal opinion, many anæsthetists may take exception to his grading of anæsthetic agents as to their relative desirability in particular operations, but that is a small matter and stimulates thought.

Everything considered this is a valuable addition to the literature of anæsthesia and should prove generally acceptable.

Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability. Bulletin 55. R. G. Barker, B. A. Wright and M. R. Gonick. 372 pp., illust. $2.00. Social Science Research Council, New York, 1946.

As the title implies, this is a compilation of American work in the field of rehabilitation. It is divided into seven chapters, including somatopsychological aspects of normal variations in physique, and somatopsychological significance of crippling, tuberculosis, deafness, acute illness, and a final chapter on Employment of the Disabled. The bibliographies of literature on the somatopsychological significance of various diseases are very complete. This is a valuable book for any group or individual especially interested in rehabilitation.

Psychiatric Research. C. K. Drinker, J. Folch, S. Cobb, H. S. Gasser, W. Penfield and E. A. Strecker. 113 pp., illust. $2.00. Harvard University Press, Cambridge, Mass., 1947.

''Man's Hope'' would have been a better title for this compact and inspiring volume. Few books so well epitomize for the general reader the approaches to the protean problems of mental illness which have been made in the past century. Few guides have been written which indicate the way ahead so clearly.

The first paper is by Professor Drinker, the eminent Harvard physiologist, and outlines the scope of research

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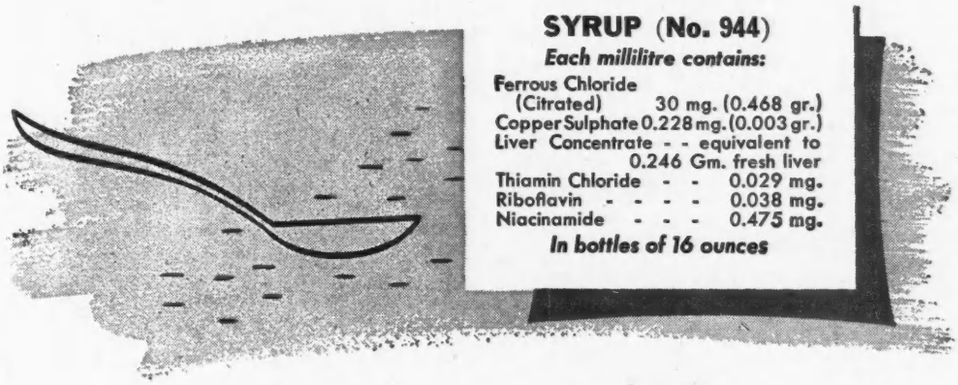

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both past and future at the McLean Hospital, a division of the Massachusetts General. He is followed by Jordi Folch, the Director of Research, writing on "Biochemical Problems Related to Psychiatry". Stanley Cobb continues with an all-embracing chapter on "Integration of Medical and Psychiatric Problems. A Report of Progress". The Director of the Rockefeller Institute for Medical Research next sets out a "Protocol for a Review of Psychiatry", and is followed by Professor Penfield's illustrated paper on "Psychical Seizures"—a subject of increasing importance in understanding what is often dismissed as psychopathic behaviour. The series is closed by Edward Strecker, Professor of Psychiatry at the University of Pennsylvania. He believes that "unaided and undirected, the exact scientists cannot save mankind from destruction", but that "pooling our efforts we can save man from destroying himself".

This little volume fills an oft-expressed need among laymen and medical men of wide human understanding, for a succinct report on the progress being made in the basic and clinical sciences which will bring mental diseases more nearly within our understanding and control. The book is beautifully printed, and is medical English at its best.

Blind Intubation and the Signs of Anæsthesia. J. U. Human, Anæsthetist to St. Paul's Hospital, Endell Street. 230 pp., illust., 3rd ed. 10s. H. K. Lewis & Co. Ltd., London, 1947.

The fact that a textbook has gone into the third edition in a period of less than ten years signifies that it is satisfying some demand; in this case the simple exposition of fundamental anæsthetic principles. The fact that its style is frequently dogmatic can only be expected in a book of this nature intended for the instruction of beginners in anæsthesia. Experienced anæsthetists will take exception to many of the statements the author makes. For example on page 153 he states that scopolamine should never be given to infants and children as premedication for ether. On the other hand many children's anæsthetists prefer scopolamine to atropine in very young children and consider it superior in every way. Again on page 195 he recommends avertin in ear, nose and throat operations as a basal anæsthetic. Many anæsthetists however feel that it is dangerous in tonsil operations as it tends to depress the cough reflex.

These are only two examples of statements which will not meet with universal acceptance. However, in the main: the book is well written, clearly illustrated and has a series of valuable diagrammatic illustrations original with the author which greatly elucidate his description of anæsthetic theory and technique. It is a valuable book for beginners and the more experienced anæsthetist will find it stimulating if for no other reason than that it makes challenging statements with which one longs to take issue.

Law and the Practice of Medicine. K. G. Gray, Lecturer in Medical Jurisprudence and Forensic Psychiatry at the University of Toronto. 68 pp. $1.50. The Ryerson Press, Toronto, 1947.

This small volume supplies, in terse form, much of the information needed by doctors about medico-legal matters, problems for many doctors infrequently encountered but of urgent importance when they are. The book begins with a statement of the sources of our law and notes how much of it arises as the result of precedents established in various courts, at once a partial explanation why the law so often seems to trail scientific knowledge yet can adapt to it so justly. There are remarks on coroners and inquests; when an expert is and is not and how he may arrange to be paid; the degree of skill doctors should expect of themselves because the law will demand it of them; reasons for sterilization and which of them are regarded in law as sufficient; remarks about professional secrecy, misunderstood by too many doctors; the wisdom of doctors joining a defence association. Because the question is becoming of increasing importance one could have wished for some discussion about the ownership of x-ray films and office records, when and how the latter may be used after a doctor's death. The book can be recommended as a guide when faced with unfamiliar legal problems and should occupy a place in any busy practitioner's library.

Rh. Its Relation to Congenital Hæmolytic Disease and to Intragroup Transfusion Reactions. E. L. Potter, Assistant Professor of Pathology, Department of Obstetrics and Gynæcology, the University of Chicago and the Chicago Lying-in Hospital. 344 pp., illust. $5.50. The Year Book Publishers Inc., Chicago, 1947.

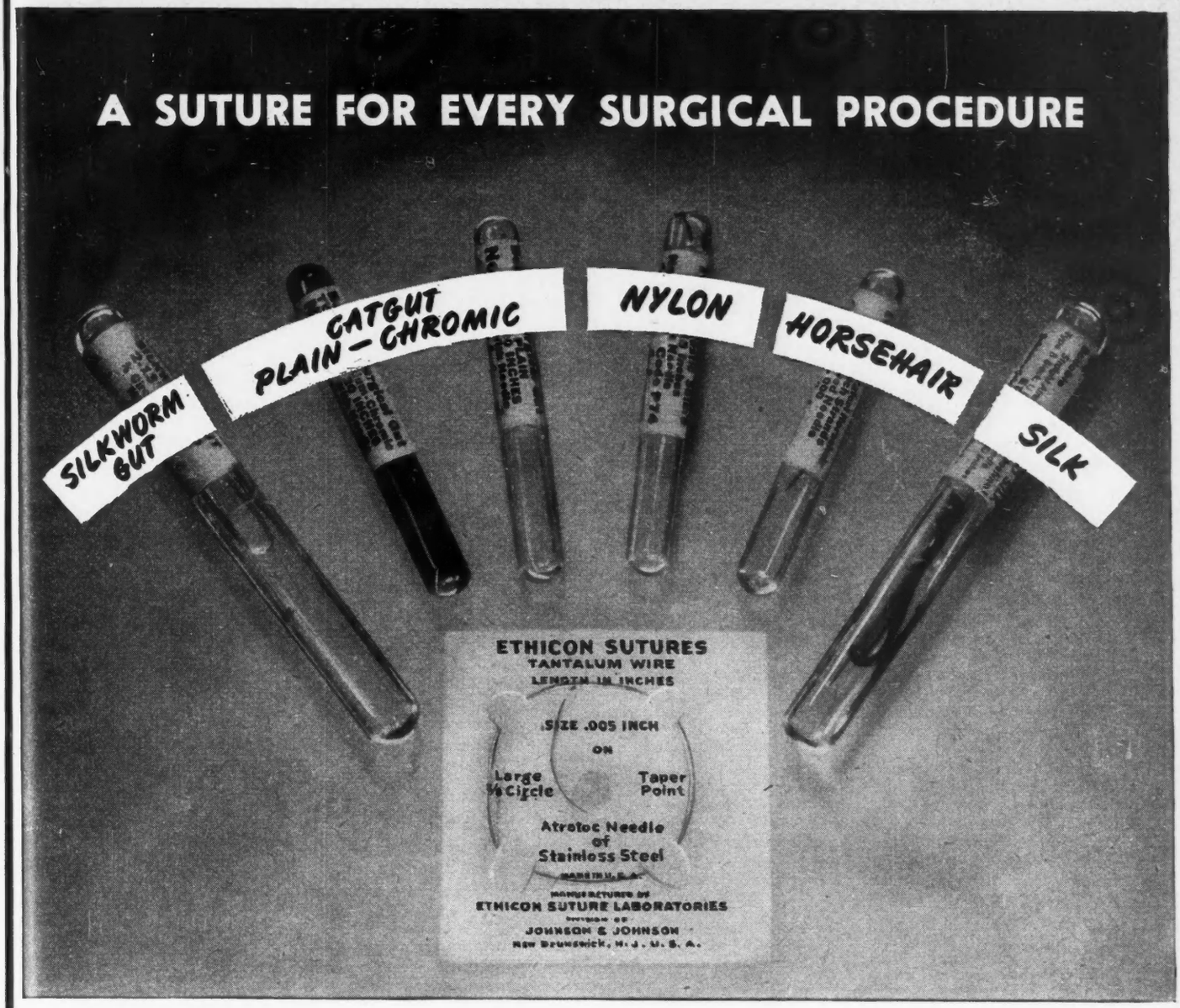
This work, the first compilation of available knowledge concerning the Rh factor, will serve to clarify a great deal of confusion in the minds of many physicians. The author divides the material into three distinct sections; the first, intended for the practising physician, is a brief, simplified version of the practical aspects of Rh factor incompatibilities. The second section deals in great detail with some of the more intricate genetic and serological problems and the clinical aspects of hæmolytic transfusion reactions and congenital hæmolytic disease; the author here shows a justifiable conservatism in distinguishing between theory and fact. A brief discussion of various technical details forms the third section. For those interested in the field of blood grouping, the complete bibliography of 794 references is valuable.

Tuberculosis as it Comes and Goes. E. W. Hayes, Associate Professor of Tuberculosis, College of Medical Evangelists, Los Angeles; with chapters by L. de Rycke, Ph.D. 220 pp., illust., 2nd ed. $4.50. Charles C. Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1947.

This book, the product of the experience of an eminent phthisiologist who believes that physician-patient understanding is a potent factor in the effective arrest of tuberculosis, consists of a simple description of the cause and nature of tuberculosis, a few notes concerning present-day means for the detection of this disease, and a detailed account of the place of rest—physical, mental and emotional—and its adjunct—mechanical therapy—in the treatment of patients with pulmonary tuberculosis. The sections dealing with treatment contain numerous diagrammatic illustrations of the indications for, and the results to be expected from pneumothorax therapy, thoracoplasty etc. The author and his associate, Lawrence de Rycke, who is responsible for the concluding sections of the book—ones entitled "Suggestions to Patients" and "Suggestions to Visitors"—emphasize the fact that in tuberculosis the cure is a way of thinking as well as a mode of life. Many a physician who has to do with persons with tuberculosis and most patients who are battling this disease will find something of value in this small volume.

The Art of Healing. Bernard Aschner. 336 pp. 12s. 6d. William Heinemann Medical Books Ltd., 99 Great Russell Street, London, W.C. 1, England; Research Book Ltd., London, 1947.

The comic strip "Dr. Bobbs" has recently been concerned with the ultrascientific physician who quite lost his humanistic impulses while searching for accurate mechanistic means of diagnosis and cure of disease. The author of the strip might have found his inspiration in this book. It is written by a scientist with a long experience as a teacher of surgery and the author of certain books on the results of research on hormones. He became impressed by cures affected by irregular practitioners when scientific medicine had apparently failed. A wide search among ancient writings convinced the writer that each succeeding advance in medical science was followed by the loss of a body of knowledge that was soundly based and would still have value if it were known. From this research into ancient methods has evolved a system called Constitutional Therapy and the work under review is a semi-popular exposition of its



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value. To the up-to-date physician or surgeon most of the suggestions made are rank heresy. Venesection is advocated as a cure for rheumatic heart failure and neurogenic surgical shock. Treatment of peptic ulcers is by bitter tonics and roast meats instead of alkalies which only stimulate secretion of greater quantities of hydrochloric acid. "Medicine which once had to defend itself against misguided Theology must now fight against the dead hand of overcomplacent natural science, *i.e.*, physics and chemistry". Arthritis demands calomel, leeches, cupping, artificial ulcers and blisters. Emetics cured dementia præcox long before cardiazol and insulin shock were invented. In an epidemic of whooping cough all children given prophylactic emetics escaped infection. Enlarged prostates ceased to trouble under a regimen of leeches to the perinæum and daily doses of Glauber's salt.

The book is most plausibly written. It quotes many works that were authoritative in their time and cites many cases in which remarkable results followed the use of ancient methods of treatment. It contains scores of hints to research workers and enough truth to make its false premises seem very reasonable. To dismiss it with contempt would certainly not be fair to either the reader or the author.

Textbook of Medicine. Edited by Russell L. Cecil, Professor of Clinical Medicine, Cornell University Medical College. 1,730 pp., illust., 7th ed. $11.00. W. B. Saunders Co., Philadelphia and London; McAinsh & Co. Ltd., Toronto, 1947.

A textbook in its seventh edition does not call for critical comment so much as assurance that it has maintained the standard of its preceding editions, which in the case of "Cecil" has been of the highest. It is impossible nowadays to reduce the size of a general medical textbook and this one is therefore a fairly bulky volume. The list of new subjects is long; marijuana intoxication; blackwater fever; psychosomatic medicine; narcolepsy; acrodynia; porphyria; various vitamin deficiencies; drug allergy; to mention a few. A long series of chapters have also undergone revision. Altogether the textbook remains as one of the best in its field.

Suicide and the Meaning of Life. Margarethe Von Andics. 219 pp. 8s. 6d. William Hodge & Co. Ltd., 86 Hatton Garden, London, E. C. 1, England, 1947.

This little book is an interesting attempt to examine the causes of suicide in a group of people who were rescued. The author investigated the family back-ground and examined the patients' attitudes to society, health and material things. An attempt was made to analyze the importance of the selected profession and the value of reputation and esteem. There were some points of interest in her consideration of sexuality in this group. Sexuality was below average in the men and the majority of the women were frigid. External factors played an important part in precipitating an attempt to commit suicide. The sudden loss of that which was most important in their life was a common finding. This loss might involve friendship, platonic or otherwise, prestige or lack of appreciation. The relatively high rate of suicidal attempts by domestic servants was commented upon. Constitutional factors in a general way were not over-emphasized in any group.

The book is written in an interesting way. The case histories and the verbatim comments of patients are appropriately recorded. It is of interest to physicians, nurses and social workers.

Acute Infectious Fevers. A. Joe, Medical Superintendant, City Hospital, Edinburgh. 276 pp., illust. $5.25. The Blakiston Co., Philadelphia, and Toronto, 1947.

When a Canadian reader is estimating the value of this book he is likely to take the chapter on Diphtheria as a basis. If he makes that choice he will find that little of relevancy or importance has been left out and he will find also that it is not easy reading for the medical undergraduate or for the average beginner in practice. There is evidence of careless proof-reading and some of the therapeutic recommendations are not quite in line with modern teaching but these are not serious defects: the main faults are jumbled construction and avoidable repetitions. Re-casting this chapter will lessen the chance that the book will fail to gain its expected prestige.

The remaining chapters are of a high order of excellence particularly those which deal with Scarlet Fever and with Cerebro-Spinal Fever. Only large experience will bring the alertness to suspect and the ability to recognize the presence of these diseases but what can be learned didactically is here set forth in clear writing and well-chosen illustrations. Enteric Fever has now little more than examinational interest for medical students but the older generations will read about it with the interest which comes from recalling the days of their clinical initiation when the field of diagnosis was strewn with the stuporose victims of the autumnal prevalence of *B. typhosum* and *B. para-typhosum*. To the disheartened physician this chapter will bring the consoling conviction that medical science does not lose every battle even if he may wonder why the view still lingers that a patient is helped by withholding food in gastro-intestinal hæmorrhage.

Chance has usually a part in making the popularity of any medical work. If sanity, thoroughness and practical usefulness are the determining factors this book will find its way into the possessions of conscientious practitioners. It should be kept readily accessible also for it deals with problems which every day test acuteness in diagnosis and resourcefulness in therapy. The importance of the work can be made still greater by the addition of a comprehensive bibliography.

Curare—its History, Nature, and Clinical Use. A. R. McIntyre, Professor of Physiology and Pharmacology, College of Medicine, the University of Nebraska. 240 pp. $5.00. The University of Chicago Press, 5750 Ellis Avenue, Chicago 37, Illinois, 1947.

The recent widespread increase in the use of curare in clinical medicine has made the production of this book both interesting and extremely valuable. It is particularly fitting that the first volume adequately to tell the whole story of curare should be from the pen of Professor McIntyre, whose brilliant laboratory work made possible the standardization and safety of modern curare preparations. The author states that "this book attempts to bring together the stories of the early explorers; the accounts of the botanists, whose search for the many and elusive plants used in the fabrication of curare is by no means concluded; the early investigations of the poisons on animals; the chemical examination of curares, which during the last ten years has progressed rapidly; and modern physiological and pharmacological research, culminating in the present extensive clinical use of the drug." This purpose has been so faithfully carried out that the book should be an almost obligatory pre-requisite for any who wish to experiment with curare, or to use it clinically. The author emphasizes that even today much remains to be learned about this fabulous drug. This book, therefore, may be considered as a very valuable "progress report" on a subject still under active investigation. The use of curare as a muscle relaxant in patients under anæsthesia is perhaps the most widespread clinical application of the drug, and Canadian doctors have had no small part in the pioneer work in this field. This volume is, therefore, particularly recommended to anæsthetists.

The Louse. P. A. Buxton, Director, Department of Medical Entomology, London School of Hygiene and Tropical Medicine. 164 pp., illust., 2nd ed. $2.50. Edward Arnold & Company, London; Macmillan Co. of Canada, Toronto, 1947.

This book gives a complete description of the life and habits of human lice and discusses in detail the best methods of control. There are chapters on typhus

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and relapsing fever with suggestions as to control measures for these diseases. It is extremely readable and will be of interest to both medical men and entomoligists. It is interesting to note that in spite of the intensive control measures developed during the war in England, the louse population continues to remain about the same as a result of the chronic inertia of man. The extraordinary efficiency of DDT as sprays and dust in eliminating louse infections is described in detail, and there is no doubt that if mankind as a whole desired they could eliminate pests entirely. The control chapters will be of a special interest to industrial physicians and school doctors who are continually meeting the problem of louse infection of the hair.

BOOKS RECEIVED

Erkennung und Behandlung der Organischen Lösungsmittelvergiftungen. F. Scharwz, Direktor des Gerichtlich-Medizinischen Institute der Universität Zürich. 168 pp. Fr. 13.80. Medizinischer Verlag Hans Huber, Bern, 1946.

Disinfection and Sterilization. E. C. McCulloch, Professor of Bacteriology in the Health Research Institute, Washington. 472 pp., illust., 2nd ed. $7.50. Lea & Febiger, Phila.; Macmillan, Toronto, 1945.

Government in Public Health. H. S. Mustard, DeLamar Professor of Public Health Practice and Director, School of Public Health, Faculty of Medicine, Columbia University. 219 pp. $1.50. Commonwealth Fund, New York, 1945.

Handbook of Elementary Anatomy. 16 plates in colour designed by J. J. Teklenburg. 5s. 6d. H. K. Lewis & Co. Ltd., London, 1947.

Head, Neck and Trunk. D. P. Quiring, Head of the Anatomy Division, Cleveland Clinic Foundation. 115 pp., illust. $2.75. Lea & Febiger, Philadelphia; Macmillan Co. of Canada, Toronto, 1947.

Medicine in Industry. B. J. Stern, Lecturer in Sociology, Columbia University. 209 pp. $1.50. The Commonwealth Fund, New York, 1946.

On the Contribution of Clinical Study to the Physiology of the Cerebral Motor Cortex. F. M. R. Walshe, Physician to the National Hospital for Nervous Diseases, Queen Square. 32 pp. 45c. E. & S. Livingstone Ltd., Edinburgh; Macmillan Co. of Canada, Toronto, 1947.

Pharmaco-Therapeutic Notebook. H. W. Tomski, Member of the Pharmaceutical Society. 280 pp. $3.50. Baillière, Tindall & Cox, London; Macmillan Co. of Canada, Toronto, 1946.

Public Medical Care, Principles and Problems. F. Goldmann. 226 pp. $2.75. Columbia University Press, New York, 1945.

Recent Trends in Alcoholism and in Alcohol Consumption. E. M. Jellinek, Director, Section of Studies on Alcohol, Laboratory of Applied Physiology, Yale University. 42 pp. 50c. Hillhouse Press, New Haven, Conn., 1947.

Voluntary Health Agencies. S. M. Gunn and P. S. Platt. 364 pp. $3.00. Ronald Press Company, New York, 1945.

1946 Year Book of Obstetrics and Gynæcology. Edited by J. P. Greenhill, Professor of Gynæcology, Cook County Graduate School of Medicine. 655 pp., illust. $3.75. The Year Book Publishers, Chicago, 1947.

Diagnosis of the Acute Abdomen in Rhyme. Zeta. 88 pp., illust. 5s. 6d. H. K. Lewis & Co. Ltd., London, 1947.

Charaka Club. Vol. XI. 243 pp. Published for the Charaka Club, Richard R. Smith, New York, 1947.

Clinical Examination of the Nervous System. G. H. Mondrad-Krohn, Professor of Medicine in the Royal Frederick University, Oslo. 380 pp., illust., 8th ed. 16s. H. K. Lewis & Co. Ltd., 136 Gower St., W. C. 1, London, England, 1947.

Food Inspection Notes. H. Hill, "Ollett" Gold Medallist, and E. Dodsworth, Chief Sanitary Inspector, Borough of Harrogate. 125 pp., 2nd ed. 6s. H. K. Lewis & Co. Ltd., London, W. C. 1, 1947.

Introduction to Dermatology. G. H. Percival, Grant Professor of Dermatology, the University of Edinburgh (formerly by N. Walker and G. H. Percival). 349 pp., illust., 11th ed. $8.75. E. & S. Livingstone, Edinburgh; Macmillan Co. of Canada Ltd., Toronto, 1947.

Glands of Destiny. Ivo Geikie-Cobb. 258 pp., illust, 3rd ed. 15s. William Heinemann Medical Books Ltd., 99 Great Russell Street, London, W. C. 1, England, 1947.

Handbook of Medical Emergencies. 106 pp. $3.75. Harvard University Press, Cambridge, Mass; S. J. Reginald Saunders & Co. Ltd., Toronto, 1947.

Handbook on Diseases of Children. Bruce Williamson, Physician, Children's Department, Royal Northern Hospital, London. 408 pp., illust., 5th ed. $3.50. E. & S. Livingstone Ltd., Edinburgh; Macmillan Co. of Canada, Toronto, 1947.

Manual of Fractures and Dislocations. B. B. Stimson, Assistant Professor of Clinical Orthopædic Surgery, College of Physicians and Surgeons, Columbia University, New York City. 223 pp., illust., 2nd ed. $3.25. Lea & Febiger, Philadelphia; Macmillan Co. of Canada, Toronto, 1947.

Materia Medica for Nurses. A. M. Crawford, Professor of Materia Medica and Therapeutics, St. Mungo's College, Glasgow. 166 pp., 6th ed. 5s. H. K. Lewis & Co. Ltd., London, 1947.

Methods of Vitamin Assay. Prepared and edited by the Association of Vitamin Chemists, Inc. 189 pp., illust. $3.50. Interscience Publishers, Inc., New York, 1947.

Notes on Clinical Laboratory Methods. Standing Committee on Laboratory Methods, University of Glasgow. 95 pp., illust. 3/6. John Smith & Son (Glasgow) Ltd., Glasgow, 1947.

Nursing and Diseases of Sick Children. Edited by A. Moncrieff, Nuffield Professor of Child Health, University of London. 744 pp., illust., 4th ed. 30s. H. K. Lewis & Co. Ltd., London, 1947.

Pasteurization. H. Hill, Provincial Milk Advisory Officer, Ministry of Agriculture and Fisheries. 296 pp., illust., 2nd ed. 21s. H. K. Lewis & Co. Ltd., London, 1947.

Physician's Handbook. J. Warkentin, Ph.D., M.D. and J. D. Lange, M.S., M.D. 282 pp., illust., 4th ed. $1.50. University Medical Publishers, Chicago, Ill., 1946.

Roentgen Interpretation. G. W. Holmes, Board of Consultation, Massachusetts General Hospital and Clinical Professor of Roentgenology, Emeritus, Harvard Medical School; and L. L. Robbins, Radiologist-in-chief to the Massachusetts General Hospital. 398 pp., illust., 7th ed. $7.00. Lea & Febiger, Philadelphia; Macmillan Co. of Canada, Toronto, 1947.